Textile World

VOL. 84, NO. 11 — ESTABLISHED 1868

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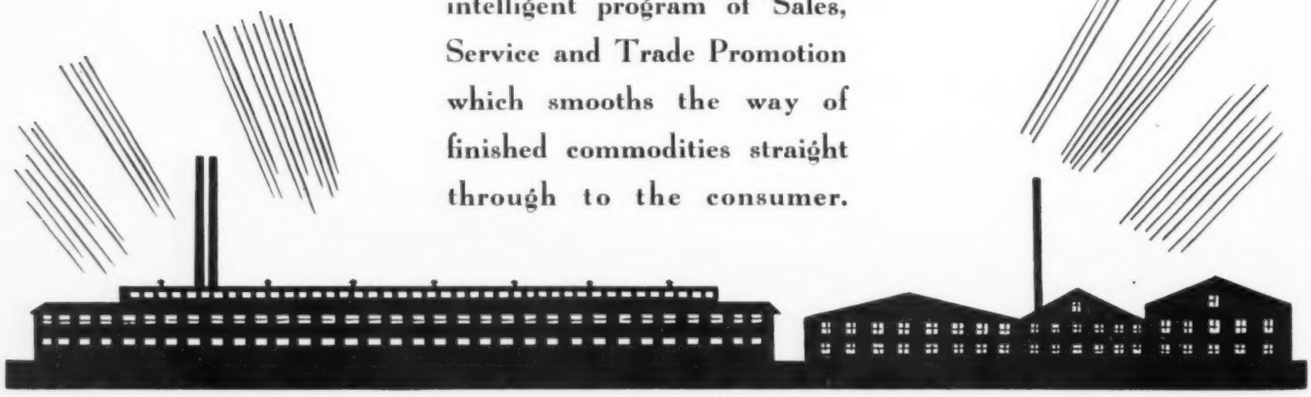

INDUSTRIAL RAYON CORPORATION

9801 WALFORD AVENUE — CLEVELAND, OHIO

Textile World

October, 1934

▼

Editor: DOUGLAS G. WOOLF

After the Strike

WHEN Francis Gorman's chortles of glee had subsided, the general public began seriously to inquire just what the United Textile Workers of America had won. This is what it discovered:

The Winant report represented an almost complete victory for the manufacturers.

▼

First, and most important, the Board endorsed the industry's main contention when it found that "an industry-wide agreement between the employers as a group and the United Textile Workers is not feasible, and that collective dealing between labor and management in this industry can, for the present at least, best be achieved through development on a plant-to-plant basis."

That one statement represented victory for the industry since it disposed of the union's real objective in the strike: its recognition as official spokesman for textile labor.

But that was not all. Most of the other recommendations of the Board were similar in purport to the terms of the settlement of the threatened strike in June, since they provided for investigation into the other "issues" advanced by the union. No one can object to investigations. The more fact-finding, or attempted fact-finding, we have the better.

The only exception of any importance was the recommendation whereby the Textile National Industrial Relations Board was to be replaced by a Textile Labor Relations Board. Without going into any details concerning the technical character of the latter, it is evident that Dr. Bruere's board was made the "goat" in the settlement. This is tough on Dr. Bruere and his associates but there always has to be at least one unfair sacrifice in the settlement of an unfair strike. Little is to be gained by weeping over the proposed demise of that board, even though it has done a good job. The main issues in the situation are too important.

Naturally, Mr. Gorman jumped promptly and hilariously into print. By one of his admittedly smart plays, he built up the public impression that the report represented a victory for the union. Thus, he impressed upon his members and prospective members the great job he had accomplished for textile labor.

As usual, facts were not important to him. For example, he stated that "the Winant report gives recognition to the United Textile Workers of America." The report did no such thing.

▼

So much for the past. How about the future?

First, it must be understood that nothing has been settled insofar as the union's frantic drive for membership is concerned. That will continue—and along the lines of the past, just as long as the present "leadership" of the U.T.W. remains. There will be further agitation and further strikes, we believe. Whether or not those strikes will be based on as flimsy a cause as the last one, and conducted in as lawless a fashion, depends upon the extent to which public opinion can be aroused against such tactics.

It should be evident to everyone that there

is a crying need for a code of limitations in industrial warfare, just as there is in war between nations.

Next, as to the relationship between employers and employees. We hope that all bitterness will have passed away before this issue reaches our readers. Fortunately, there was not the same cause for such bitterness in the recent strike that there has been in previous engagements. The great majority of the workers wanted to remain at their jobs but were prevented from doing so. There is therefore no reason now for antagonism between them and their employers.

▼

But there is much more at stake in the future. Union or no union, strike or no strike, there is still the problem of formulating sound principles of employer-employee relationships.

For more years than we like to remember, we have witnessed sporadic attacks upon this problem. We recall particularly the frantic post-war parade of so-called industrial relations plans. Many were just window-dressing; others were fundamentally sound. The real trouble was, and is, that there was little scientific approach to the problem.

That, then, is the need for the future. How can it be filled?

In answer, we want to repeat here a few paragraphs we wrote in these columns in November, 1932:

"The question of wages and hours and other employment policies is not just a 'labor problem'—but one of the most acute managerial problems a manufacturer has to face. As such it demands the best thinking of the industry instead of, as at present, resistance to thinking.

"We recommend to the several branches of the industry that their associations be encouraged—in fact, ordered—to devote the major part of their effort during the next year to the development of open forums on the broad subject of employer-employee relationships.

"Let us be understood. We are not suggesting Sunday-school sessions or sociological clinics—but a study of the relation of wages, hours and allied policies, to the economic progress of the industry and its workers."

▼

There is little to add to that statement. Under NRA an approach *has* been made to the questions of wages and hours. This must be continued but it must be extended to all phases of employer-employee relationships.

So, again, we submit this problem to the industry. It cannot be dodged. Defense cannot be substituted for offense.

What You Would Have Seen

ALTHOUGH the Southern Textile Exposition, originally scheduled for Oct. 15-20, has been postponed to Apr. 8-13 because of the strike and its aftermath, we present in this issue descriptions of some of the new developments that visitors at Greenville would have seen this month. As details of other new things scheduled for that show become available, we hope to publish them.

Those which we could secure for this issue will be found in the expanded New Machinery and Processes Department commencing on page 113.

Although the postponement of the exposition was naturally a source of great disappointment to thousands of prospective visitors, it will not detract from the interest of the show when held. This event has become firmly established as a biennial affair of the greatest importance. The delay will merely whet the industry's appetite.

The features of textile week as originally planned will be transferred to April. The Southern Textile Association will meet Apr. 12; the Greenville Section, A.S.M.E., on Apr. 10; Edward T. Pickard, secretary of the Textile Foundation, announces a meeting of textile school heads on Apr. 8, 9 and 10 and the Greenville Chamber of Commerce will hold a luncheon for this group on Apr. 9.

The Stretch-Out

—AN EDITORIAL

IT SEEMS necessary to clear the air on the subject of the stretch-out. To do this, we shall consider its broad implications rather than its technical details.

The impression has been created in the public mind, thanks to the publicity staff of the United Textile Workers of America, that the stretch-out is a Satanic invention of the textile industry to grind more work out of overburdened and under-paid textile employees.

On the contrary, it was in its inception merely a part of the whole program of scientific management on which all industry embarked, particularly during the post-war period.

Stated simply, it was an attempt to employ the most modern equipment and the most efficient management plans in order to reduce the cost of manufacture, broaden the consumption of the product, and increase thereby the remuneration of both capital and labor. It was accomplished through the installation of machinery simpler and easier to operate, through the delegation of unskilled tasks to unskilled employees, through the use of raw material or yarn less likely to give trouble, and through other steps which reduced the time an employee was obliged to devote to any one machine. Consequently he could tend more machines without having any more work to do than formerly.

Theoretically—and usually in actual practice—by the employment of the "stretch-out," a skilled worker would be confined to the performance of skilled tasks, would be enabled to increase his or her output, and would receive a larger pay-envelope.

The same sort of thing had been going on, to a much greater degree, in the automobile industry; it had been employed in other industries too numerous to mention.

The inevitable result, of course, was to reduce the number of workers required to produce a given number of units. Some were thrown temporarily out of employment; those who remained were in most cases better paid. As long as the displaced workers could find jobs in other industries, built up by this higher level of productivity, everything was all right. When the financial crash came, everything was all wrong.

However, we believe that the current discussion of the textile stretch-out is not concerned primarily with this broader problem of technological unemployment. At least, the textile industry cannot be singled out as the sole contributor to that trend. As a matter of fact, it was one of the least.

Instead, the argument centers around the alleged burden placed by the stretch-out upon textile workers, without proportionate increase in remuneration—in fact, it is charged, with actual decrease in wages.

First, part of the blame must be placed upon unscientific use of the "stretch-out" in many mills. The number of looms per weaver, for example, was sometimes increased without the necessary basis of a careful engineering study and application of the results of that study. When this was true, the stretch-out was in fact unfair to labor—and eventually disastrous to the company itself.

But that is only part of the story.

The textile stretch-out came into considerable use in the two or three years immediately preceding the 1929 crash. The automobile and other industries introduced scientific management in the years immediately following the war, and both management and labor profited thereby during the so-called golden 20's.

The textile industry, on the contrary, ran smack into the 1930-33 mess. It never had a chance to test the beneficial results of such management. Even those companies (and they were in the majority) which had introduced it honestly and scientifically, found themselves forced by price-degeneration to cut wages again and again. In the struggle for mere existence, they made frantic efforts to increase production so as to reduce the loss on current operations.

Consequently, it is true that the net result was that textile workers were turning out more and more production for less and less money.

It is of little avail, right now, to debate, academically, what might have happened if the textile stretch-out could have been tested during a decade of affluence, rather than during a few years of utter depression. That will have to be settled later—because, certainly, we cannot have reached an enforced end to technological advance.

For the present, the principal problem is to stabilize the stretch-out so that the interests of labor may be protected. It was this objective that the industry had in mind when it inserted in most of its codes a stretch-out status quo as of July 1, 1933. It was this objective which the Bruere board has had in mind.

Organized labor claims that the Bruere board failed in that attempt. We shall not discuss this question here. It is past history, since a new board now has that problem in hand.

The industry's real job now is to cooperate with that board in finding an answer. The best engineering talent must be brought into the picture. Differences must be composed. One of the principal points of disagreement is whether or not a "formula" can be devised. We hope to have more to say on that point in future issues.

Meanwhile, let this be understood: The stretch-out is *not* peculiar to the textile industry. It is not even peculiar to this generation. Modern industrial history is largely a series of chapters on this trend. Nor is the stretch-out a thing of the past. It is very much a problem of the future. The present moratorium is merely an interlude, forced upon the industry and its workers by world forces with which they, and the world itself, have not as yet been able to cope.

The Editor Says:

ALL the fears with regard to the Administration's "intrusion" into business (which fears we, personally, have not shared to date) will prove to have been justified if one current trend is not checked at once. We refer to the tendency toward Government-operated factories manned by unemployed, and producing goods for relief purposes. We have at least one such instance in the textile industry: a knitting plant in Cleveland.

The Government's argument is that this is not competition with private business, since the product goes only to those on relief rolls and therefore does not compete directly with the products of the industry itself.

As Al Smith would say, that is the bunk. The National Association of Hosiery Manufacturers puts it more politely when it says: "Any merchandise produced by Government manufacture will decrease by that amount the demand for the product of private enterprise."

That's so self-evident, that it seems a shame to force an association to express such a plain truth. But evidently the Administration hasn't been able to see it.

The funny (?) part of it all is that, while NRA tries to aid over-capacitated industries to put proper checks on their production, the relief administration puts new units into operation. (Reminds us of a piece we wrote about the AAA a few months ago.)

Here's a word of advice to the Administration: You've been losing friends at an alarming rate recently. Personally, we haven't thought you deserved it—and we've been with you in most things. But if you want to lose all the rest of your friends, with the exception of the small minority which is ready for state socialism, go right ahead with this relief-factory idea. It's a "natural" as a friend-loser.

❖

So We Are Told

IT'S none of our business, we admit, but we've been thinking about the new regulations affecting the securities markets. Some of our friends are brokers—and don't seem to like these restrictions so much. In fact the things they say about F. D. R. just aren't nice. Not knowing much about it, we couldn't argue with them.

But the other day we heard something which seems to make sense. It was a stock-broker speaking, too. He recalled the days, early in this century, when the strict regulation of insurance companies was first initiated. There was weeping and wailing and gnashing of teeth among those companies. They saw ruination facing them. And yet, in the subsequent quarter-century, their business increased at a rate that had never been dreamed of—due directly, it is held, to the feeling (and actuality) of safety which these restrictions had engendered.

Just that can and will happen in the securities market, this far-seeing broker contends. It can become almost as safe a haven for people's savings as insurance now is. Their business, eventually, can be multiplied many times—and the stability of the individual firms similarly increased.

As we said before, this is a little out of our field—so we can't guarantee the facts. But the conclusion sounds pretty good. Even though we think the Administration should go slowly in pushing reforms upon a hesitant and unconfident country, we wonder if certain of the reforms won't eventually aid the very people who now are kicking most vehemently about them.

❖

Glad or Sorry?

WHETHER the textile industry likes it or not, it is going to have more to do with the Department of Labor, and Madame Secretary Perkins, in the future. The creation of the Textile Labor Relations Board, responsible to the National Labor Relations Board, and the provision for an investigation by the Bureau of Labor Statistics, insure that fact.

We are not quite sure whether the industry should be glad or sorry—but we have our suspicions.

When we visited Washington a few weeks after the Roosevelt inauguration, we returned all enthused over the first woman Cabinet member. In these columns, we called her the best "man" in the Cabinet.

But since then, she has been showing some peculiar traits. One expects—in fact, demands—that the Labor Secretary should be partisan to labor. But that does not mean that he (or rather she) should espouse the cause of any labor organization, irrespective of its personnel or tactics. In the midst of the most unfair and dishonestly-waged strike in recent history, Miss Perkins had the effrontery to hand out to newspapermen such blah as the statement that she had "assurances" from Mr. Gorman that there were no hoodlums in the flying squadrons. This type of remark, plus her failure to make any critical comment about the outlaw tactics of the U.T.W., has built up a feeling of antagonism in the industry which Miss Perkins will find difficult to break down.

We hope she tries, for the good of all concerned.

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To the General!

WE HARDLY feel up to the task of writing a farewell piece about General Johnson, so far as the NRA is concerned. In fact, we think the General himself is the only one with a vocabulary which can cope with that task. The loss of the Johnsonian phrases is one of the saddest parts of the whole business. Life will seem drab; radio reception deadly.

The General dug his own grave—bravely. When we heard his now-famous "textile-strike speech" coming over the air, we said to ourself: "That's great. And the General, being what he is, just had to do it. He can't keep still in the face of unfairness. But he'll suffer for it. It isn't politic—even if it *is* brave."

And, of course, that is what happened.

If Francis Gorman can get any satisfaction out of playing even a small and indirect part in the final removal of General Johnson from the NRA scene, he is entitled to it. In fact, it's rather humorous to think of a person of Gorman's caliber having any effect at all upon the General—other than possibly to make him sneeze. When we get a textile labor leader who can begin to understand, even remotely, a man like Johnson, we shall have made some progress in the labor relations of our industry.

Meanwhile, au revoir to the General. May his courage and his brilliance find new and ample arenas.

To the Editor:

EDITOR, TEXTILE WORLD:

I beg to refer you to the correspondence we had last December.

I have attended many code meetings as well as meetings of representatives of trade interests in the textile industry. I would certainly beat the drum and beat it hard right now on the subject of an American Textile Institute. Every day adds more evidence to the fact that we are sadly lacking such a cooperative medium.

Would "Beat the Drum" for a "Textile Institute"

Can you imagine how much different the situation would be today in the present handiing of the strike for instance, if through the Institute the whole textile trade could face this situation together?

Would not the political phase of it be much more favorable than what it appears to be at present?

Would not the labor leaders themselves be less inclined to make all sorts of wild statements and would not the public be better posted on the issues if a Textile Institute were to speak for this immense industry?

By all means go to it and drive it home again and scream it in big letters.

PAOLINO GERLI.

Processing Tax Plus Wage Increases Equals Hash

In our January, 1933, issue we had the following to say about the so-called domestic allotment of farm relief, the predecessor and prototype of the present processing tax:

"We consider the plan an economic monstrosity. It is unsound in its principle, unworkable in its detail, unfair in its discriminatory features. It would result in bootlegging and tax evasion. It would require vast policing and punitive agencies, particularly in connection with acreage curtailment—and there would be no chance for those agencies to be at all effective."

We have now received the following letter:

"Editor, TEXTILE WORLD:

"There is something to your prophecy about a monstrosity in our midst. What would you say if the government removed the tax or ½ of it and gave the other ½ to Labor, who deserve it, and if you are honest, you will admit it. At any rate, they have as much right to it as southern cotton growers who got paid for cotton they don't grow and never intended to—and hog raisers who receive wealth for not raising hogs they never intended to. Aren't there more laboring people in genuine distress than cotton farmers or hog raisers? Then don't you believe that this tax collected money would do more to increase a freer circulation of money in trade in their hands than in the other's possession? Please tell us the answer."

We wish we could tell this writer "the answer." However all we can do is to express our own opinion. From the very first moment when it was proposed to remove the processing tax and use this money for the purpose of increasing wages, we have been amazed that anyone should take the suggestion seriously. We still think the processing tax is a monstrosity; we still hope that the textile wage will increase. Nevertheless we see no excuse in the world for confusing these two issues either in discussion or action. If the processing tax is right, it should be continued; and if it is wrong, it should be discontinued. This action has nothing to do with the textile wage. The whole agitation is an example of the muddled thinking which develops from a deplorable situation such as the textile industry has been facing in recent weeks.

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Comments on Strike Editorial

"I am proud to know you—the editorial is swell! I hope you have not forgotten what I have told you over the course of years to the effect that I know no one who has a greater faculty of writing clearly and understandingly of the problems in the cotton textile industry than your good self."

"My compliments to you on your editorial in September issue. It was a masterpiece.

"Congratulations on your editorial in the September issue. In my opinion this is by far the best series of comments that has appeared in connection with the recent disturbance."

"Congratulations on your labor editorial in the September issue."

"The editorial from the TEXTILE WORLD, 'United Textile Workers vs. Textile Workers' is the best thing I have read on this subject. The editor sees this matter dispassionately and clearly."

"I have read with very much interest the editorial and reportorial treatment of strike troubles in your September issue. This subject has been well handled and as I read these pages I wish that the matter could be given general circulation in the press as a whole."

"Have noticed reprint of a recent TEXTILE WORLD editorial which is being issued in pamphlet form by the Cotton-Textile Institute. In this the issues are clearly presented and all manufacturers appreciate the fair stand that the publication has taken."

"Have just finished listening with considerable interest to your discussion of the present textile strike on the radio. I consider it an excellent resumé and agree with you in your recommendation that the mill owners would do well to fight to the end."

"I am writing to express my appreciation of the splendid editorials in connection with the recent strike. I also understand you made a fine address over the radio, which I was not so fortunate as to hear, but which I have heard very highly commended."

"Just listened to your speech over WISN, Milwaukee. If you think that the wages the textile workers are receiving today is enough to live on, why don't you try to live on this amount for six months? I bet you never did a day's work in your life. You said in your speech that 'strikers are threatening the scabs' which I don't think is true. How about the mill-owners' hired thugs murdering and wounding just strikers? Remember we are living in 1934, not in 1812. For a better world to live in." (*Anonymous post-card.*)

"Last night I heard one of the finest radio presentations of my experience and the ablest presentation of the strike situation. The above is not any hooey. I mean it and I am very grateful for your real service to the industry. I recognized, of course, your editorial which I consider a classic."

"I think you hit a bull's eye in your editorial. It was a clear, unbiased and for-sighted statement which I felt sure you would make after you had been here and had seen the conditions. It is being read widely and is doing a great deal of good."

"Your able editorial on the strike situation is very interesting and I have no hesitation in saying that it is the most forceful and comprehensive presentation that I have seen on the subject. I also want to compliment you on your recent radio address."

"I am sure your September issue will be read by all of the mill men of the South with a great deal of satisfaction."

"I am telling you with all sincerity and with a deep appreciation of your editorial ability, that in my opinion, the editorial in the current issue of the TEXTILE WORLD was the outstanding editorial of all that I have read dealing with the strike issue. I think it is a masterpiece. Many of my friends have been enthusiastic in discussing it with me."

"I read your editorial in this month's issue, and it is excellent. What we need is more plain speaking like this."

"I cannot refrain from writing you in commendation of your powerful editorial in the September issue of the TEXTILE WORLD. You have done a fine piece of work and this ought to be a part of the influence now being brought to bear upon creators of public opinion."

Labor Board

APPOINTED BY PRESIDENT IN LINE WITH WINANT BOARD RECOMMENDATIONS

LESS than a week after the Winant report was submitted to the President, the latter created the Textile Labor Relations Board recommended in that report. He also authorized the investigations by the Bureau of Labor Statistics and the Federal Trade Commission suggested by the Winant board.

The Textile Labor Relations Board, which assumes important jurisdiction in connection with the enforcement of the labor provisions of the textile codes, is composed of Judge Walter P. Stacy of North Carolina, chairman; James A. Mullenbach of Illinois, and Admiral Henry A. Wiley, U. S. N., retired. However, it was understood that Judge Stacy was to serve during the board's formative period only.

Functions of New Board

The main functions of the board, as set forth in the President's executive order, are summarized below:

To investigate, and take appropriate action in, cases of alleged discrimination in taking men back to work after the strike.

To investigate, hold hearings on, and make findings of fact as to, any alleged violations of Section 7(a) of the NIRA.

To act as a board of voluntary arbitration, or to appoint a person or agency for such voluntary arbitration, upon request of the parties to the dispute.

To investigate, hold hearings on, and make findings of fact as to, any alleged violation of any provision of the cotton textile, silk textile and wool textile codes relating to hours of work, rates of pay or other conditions of employment; and, if necessary, to refer such findings, with recommendations, to proper governmental agencies for appropriate action.

To certify the results of all elections conducted by it or by its agents to parties concerned; and the person, persons or organization certified as the choice of the majority of those voting shall be accepted, for the purpose of collective bargaining, as the representative or representatives of the employees eligible to participate in the election, without thereby denying to any individual or employee or group of employees the right to present grievances, to confer with their employers, or otherwise to associate themselves and act for mutual aid or protection.

To exercise such powers as may be conferred upon it by any code of fair competition.

To make quarterly and annual reports through the National Labor Relations Board and the Secretary of Labor to the President; such reports to state in detail cases heard, decisions rendered, investigations made, and the names, salaries and duties of all officers and employees appointed by it.

It is further provided that appeals on questions of law involving Section 7(a) of the NIRA may be taken from the Textile Labor Relations Board to the National Labor Relations Board in cases in which (1) the Textile Board recommends review, or (2) there is a difference of opinion in that board, or (3) the National Board deems review will serve the public interest. Otherwise, the findings of the Textile Board are final and not subject to review by any person or agency in the executive branch of the Government. The board is allotted $50,000 from the funds appropriated for the purposes of the recovery act, and additional allotments may be made in the future.

With the creation of the new board, both the Winant board and the Bruere board passed out of existence.

B.L.S. Investigation Ordered

In the same executive order, the President, acting on recommendation by the Winant board, provided that the Bureau of Labor Statistics shall prepare a comprehensive report on the actual hours of employment, earnings and working conditions in the textile industries. The bureau was also instructed to make an investigation on, and a report of, the different types of work performed by the various classes of labor in those industries, the actual wage rates paid for the various classifications of work, and the extent to which differential wage rates apply to different skills.

Trade Commission Investigation

In further compliance with the Winant recommendations, the President ordered the suggested inquiry by the Federal Trade Commission. In order to furnish a basis for determining whether wage increases based upon reductions in hours or otherwise can, under prevailing economic conditions, be sustained, the Commission is to investigate the labor costs, profits and investments of textile manufacturing companies, and make pertinent comparisons between the facts so ascertained and the changes in wages, hours and extent of workers in the industry.

This investigation is given priority over any other general investigation. The reports of both the B.L.S. and the F.T.C. are to be made public at the earliest possible moment.

The Stretch-Out Provisions

Although not referred to in the executive order, the Textile Labor Relations Board, according to recommendations in the Winant report, is to appoint a Textile Works Assignments Control Board consisting of an impartial chairman, a representative of the employers

and a representative of the employees, to have general jurisdiction over the stretch-out problem.

The more important of the stretch-out provisions of the Winant report are summarized below:

In order to provide opportunity to develop a sound method and adequate organization for the regulation of work assignments, no employer shall extend the number of looms, frames or other machines tended by any employee during the period ending Feb. 1, 1935, nor shall such employer make a substantial change in tasks during this time.

During the period of suspension provided for above, the Textile Work Assignments Control Board may, on petition of any mill planning to install labor-saving machinery, and after a hearing open to representatives of interested employers and employees, authorize the employer to increase labor assignments to the extent only that the amount of work required of the employees affected will be directly reduced by the installation of this machinery.

On petition of the representatives of labor, or on its own motion, the Textile Work Assignments Control Board may investigate any work assignment at any mill which has been increased since July 1, 1933, and if it finds such assignment excessive may require its reduction accordingly.

The Textile Work Assignments Control Board shall have authority to appoint district impartial chairmen and such other agents as it sees fit, and to issue such rules and regulations as it deems necessary to carry out the foregoing provisions.

The Textile Work Assignments Control Board shall study the actual operation of the stretch-out system in a number of representative plants, selected by the Code Authority and the U.T.W., and shall by Jan. 1, 1935, recommend to the President a permanent plan for regulation of the stretch-out. Such recommendations when approved by the President or the administrator, after such notice and hearing as he may prescribe, shall become effective as part of the code. Such plan shall include, among such others as the board deems necessary, the following principles:

(a) No employer shall increase the work assignments of any class of work until it has secured authorization from the district impartial chairman from the district in which the mill operates.

(b) The district impartial chairman on petition by the representatives of the employees at any mill shall investigate the justifiability of existing labor assignments and if he finds the assignment involves excessive efforts by the workers, shall require the mill to reduce such assignments.

(c) Decisions of the district chairman rendered under the above provisions shall be binding upon the parties affected, but shall be subject to appeal to the Textile Work Assignments Control Board, whose decision shall be final.

Code Authority Welcomes Suggestions

In its statement on the Winant report, the Cotton Textile Code Authority asserted that it "has always welcomed and does now welcome constructive suggestions." The Authority expressed gratification that the findings of the Winant board sustained the position of the cotton textile industry as follows:

Best Saying of the Month

"It is our confident expectation that the Government will follow the customary procedure of obtaining the *collaboration and assent of the industry* or its representatives in the process of code amendment. In regard to *voluntary codes*, it has been the understanding of the Code Authority that such *assent is requisite*. In any event, such a course follows directly from the *spirit of partnership* invoked by the President as the essence of his recovery program, which we are confident the Government is determined to preserve."—From statement by Cotton Textile Code Authority commenting on Winant Report.

Editor's Note: **Italics are ours.**

1. Working conditions in the industry have been vastly improved under the code and

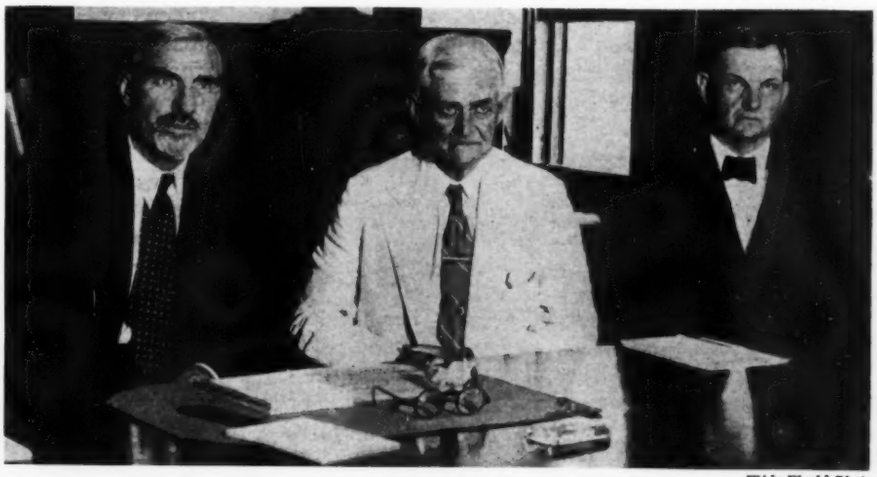
2. Industry-wide collective bargaining with the U. T. W. is not now feasible.

The Code Authority expressed its willingness to cooperate in the further study of the economic condition of the industry recommended by the report.

With reference to the question of work assignments, it was stated that the Code Authority had directed its committee on code amendment to request a conference with the President or his representatives and to make "what it is believed the President will regard as constructive suggestions."

Although regarding the old Cotton Textile Industrial Relations Board "as fair and competent as any personnel that could be chosen," the Code Authority accepted the new Textile Labor Relations Board and expressed its desire "to cooperate now as it has in the past in the orderly handling of this matter."

On the difficult question of rehiring strikers, the Authority expressed accord with the "generous spirit of the President's recommendation"; gave assurance that the industry would not pursue a policy of resentment; and recommended that, as work becomes available, workers who did not engage in lawless violence be reemployed.



Wide World Photo

Textile Labor Relations Board: (left to right) James A. Mullenbach, for many years labor conciliator in Chicago garment trade; Henry A. Wiley, Admiral, U.S.N., retired; Walter P. Stacy, Chief Justice of Supreme Court of North Carolina.

TEXTILES: THE BACKBONE OF

Japan's Progress

By William Niels Chace
Lawton Mills Corp., New York

THE Roman Era of Empire—the European Renaissance—the British Industrial Awakening—United States and the New World—and, in the same annals of economic history, is being written a new tale so vast, so deeply vital that we have yet to appreciate its full significance: Japan is making history. We, as competitors of Japan's very backbone, can ill afford to ignore the steps of her progress.

On a now-memorable March 31, 1854, Commodore Perry piloted the United States fleet to the far-flung shores of Japan; he was greeted by a multitude who gaped and marveled at western man's wondrous power. Perry was duly feted, Japan was proclaimed open. Eighty years later, we scurry about, frantically throwing up protective tariff walls against this new-comer in the commercial world, and hysterically belaying ourselves and others with the oratories of trade-balancing negotiations.

The area of Japan (proper) is less than that of California; her popuiation is half that of the entire United States. Agriculturally poor—restricted and over-populated, Japan faces problems parallel to those which the British realized centuries before. To gain, and to hold, her ambitious position in the structure of our world, Japan had to aim for industrial power, for commerce and its flow of exchanged commodities, and for colonial expansion.

Influenced by the exigencies of economic balance, Japan instinctively adopted textiles as the backbone of her struggle for dominance: textiles because she had long found her bid there in silks—textiles because it was a basic, giant industry; because it found every advantage in her top-heavy source of cheap labor; it promoted the exchange of manufactured for unmanufactured goods, leaving the profit in Japanese purses; it promoted shipping and embraced rich allied possibilities; it gave Japan the opportunity of an industrial, if not always actual, colonization of the dormant Orient.

A recent survey of Japan's statistics of imports and exports already bears out the sound trend of her commercial ambitions—testifies to the strength of her backbone:

	Imports	*Exports*
Raw materials . .	58.6%	3.6%
Semi-manufactured	14.1	34.5*
Fully-manufactured	15.3	49.7
Foods, drinks and tobacco	11.2	7.4

*Including silk.

Japanese textiles represent 70% of her total industrial output. And her cotton goods exports for the first six months of 1934 leaped up with the startling advance of 20% over 1933's incredible figure—or, in home mathematics, to cover four times the most optimistically indicated exports of the United States. While our average number of active spindles declined from 32,500,000 in 1927 to less than 25,000,000 in 1933, a monthly loss of 100,000 spindles, Japan saw an average increase of 47,000 spindles for every month of last year. Japanese mills now consume almost half as much cotton as United States mills; her advance in production is steadily meeting the descent of ours; her exports have left ours choking in the dust of her amazing race for textile supremacy.

Japanese goods have long ceased to be heavy and coarse. She has successfully duplicated and competitively entered the markets of crepes, fancies, dress goods; she has copied Italian neck-wear designs, European dress-wear fabrics. She can convert our cotton into cloth and convey it to any market in the world for 50% less than our lowest bid.

Japanese mills are discarding inadequate machinery for that necessary for finer and more efficient work. Her capital is already centralizing multitudinous mills into vast consolidations; production costs are being sliced even thinner; in many cases her picker rooms and finishing plants operate under the same corporation overhead. Her dividend rate was over a 10% average for last year.

Style and fabric scouts are poking insatiably inquisitive, Japanese noses into every textile market in the world. Small importations are taken by Japan—knit goods, weaves, yarns, novelties—style trends are studied, and soon Japanese exports bulge their way of duplication into the same markets from which she so recently borrowed her patterns. Mixed fibers are progressively utilized with the ever-present goal of foreign competition.

Imitation on the part of Japanese manufacturers does not stop, however, with the nature of the product; its ingenuity is extended further and duplicates labels, trade marks, identifications of origin. It was the writers good fortune, while in the Orient, to see much of this officially traced and proven.

Labor is ridiculously cheap. Women are contracted —"indentured" is a more applicable term—for a period of two years, drawn from poverty-stricken locations by the temptation of a romanticized mill life or by the rewarded consent of parents. They are thrown into barracks—worked 11 hours a day, seven days a week, two holidays a month—and for the compensation of 18c to 12c a day, subject to "fines" and various other "deductions." Male operators get slightly more and supply their own food and lodging. The Japanese are an exceptionally quick and adept people in the arts of imitation. Girls from the rice fields, men from the streets, are easily adaptable to machinery operation and soon

make excellent mill hands—with the proper "supervision and encouragement," of course!

We are, it has been not too unjustly observed, a bit unbalanced in cheering the exports of pulp from our western spruce lands to Japan. While we can be proud that 70% of Japan's rayon pulp comes from the United States, still we cannot afford to ignore our customer's growth in the competing finished product. At the present rate of advance, a Japanese annual rayon production of 156,000,000 lb. is by no means an absurdity. Her rayon exports already represent a quarter of her total production. Rayon cloth exports to Egypt, India, Africa, Australia and the East Indies reflect what must have been an enormous manufacturing and distribution pressure. In the first three months of 1934 her total rayon cloth exports were over 70,000,000 yds.—an increase of 25% over 1933's corresponding figure. The Philippines are taking an average of a million yards a month.

Rayon yarns batter world markets with profit spreads estimated to be 25%; 120 denier rayon has a manufactured cost of 17c, which includes 13% for labor, we write labor at 48% and wonder how long we can hold it down! Many wise men lay Japan's incredible rayon profit to faulty depreciation and cost practices—if, however, there are mistakes in Japan's industrial bookkeeping, she allows a sufficient margin to cover them.

Japan no longer finds it necessary to look to Italian, German and British manufacturers for her rayon plant equipment, nor for caustic soda and chemicals; she can now adequately supply her own needs in this end.

Japanese textile machinery manufacturers are driving Lancashire out of the Orient. A single, well known anecdote best exemplifies this new trend of industry. British machinery manufacturers placed a bid for equipping a new Chinese mill. Under the same bid Japan listed the building of the plant itself, completely equipping and delivering same in running order, the lending of a technical supervisor and the financing credit of three years. It is far from incredible that, in the not too far distant future, export-minded British and American machinery manufacturers will be sneaking around Japanese methods and patterns for a stolen survival.

Japan must look and is looking to colonial expansion. Yet, fully as important and far more drastic are her industrial colonizations. Japanese capital runs British and native owned mills to a curtailment schedule with her modern plants in China. Japanese capital contemplates a new rayon plant and 2,000 rayon looms in India—to supplement her threatening hold on the rayon imports of that country. Japan now supplies over 85% of India's cloth imports and over 26% of rayon imports. In May, 1934, Japanese cloth exports to Egypt jumped 50% over April's surprising total. Japan has 70% of the Philippine textile trade. Her textile exports to South America have increased 146% during the first half of 1934—731% in Central America. Another recent survey shows her textile exports increasing 140% in the, as yet, untapped European markets—500% in Australia. In the East Indies her share of the total imports of that vital market increased from 16% in 1931 to 31% in 1933, while the United States decreased horribly to a bare 6% in 1933.

While it would not be tactful to state, either by surmise or statistics, the extent of the sympathy of the Japanese Government with her private industrial ventures, it is not radical or dangerous to understand certain facts: that coal and beer are next slated for the protection of the government's subsidizing thumb; that Japanese woolens have sold in Australia for less than the original price of the raw product; that one of the modern Chinese-owned mills was recently bombed ("accidentally") by Japanese manoeuvres of "urgent protection" in China; that ship-building and maintenance programs are openly aided; that patent rules and their restrain of violation are notoriously lacking; that juveniles have worked 15 hours, instead of the legal 11, to meet all-important exportation dates.

Japan and Great Britain are at commercial war. Mussolini gnashes his teeth on native Italian spaghetti which, thanks to Japan's culinary art, is becoming a rapidly forgotten taste in world markets. Sweden barters with Japan for match interests while the latter holds the Oriental trade and ships over 50,000 tons of matches to the United States. Germany groans over her lost trades. Canada sets up her "anti-dumping machinery." The East Indies cry for trade concessions. The Soviet wonders if she'll ever sell the Chinese Eastern Railway.

All this is evidence of Japan's industrial colonization; almost monopolistic textile manufacturing in China; commercial power in the East Indies, Egypt, India and the Philippines; Japan grappling for the Orient; charging South America, Central America and Africa;—challenging the West. This is the story and economic history in the making—the struggle of Japan, bracing the strong backbone of her textiles to repeatedly run amuck for world power, battering her way through the staggering opposition of a world which holds its nose in Japan's commercial presence, while Japan retaliates by thumbing hers, with its industrial low-cost curve, at the tariff walls and desperate trade restrictions which confront her in every foreign port.

Again, we must not forget, Japan has her own internal problems: increased taxes; her cabinet only lately resigned under the pressure of treasury manipulation scandals; her new cabinet hardly organized; dissension between industrial and military factions; her silk interests sadly limping, domestic debts piling up; and the always-present troubles of an awakened people.

Meanwhile we hope that, at the worst, Japan's industrial threat is less of *control* than of temporary *demoralization* during the term of her adjustment to the active resentment of world commerce. Such a hope is far more comfortable than the resigning surrender of "water seeks its own level." We would sooner have wished Perry and his fleet sunk in the Pacific than submit to such a level as an unhindered Japan might effect.

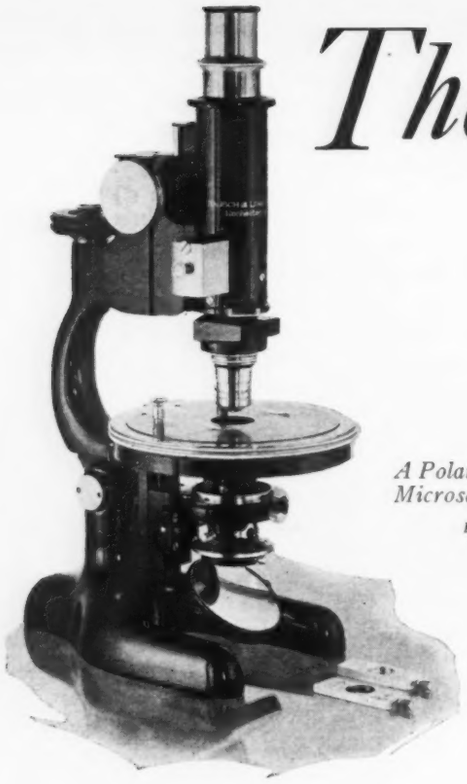
International Photo

A demonstration in front of the Fuji Cotton Mill near Yokohama

The Cotton Classer

FINDS A VALUABLE TOOL IN THE POLARIZING MICROSCOPE

By Chesler L. Pattee
Technician, Pequot Mills, Salem, Mass.



A Polarizing Microscope
Courtesy of Bausch & Lomb Optical Co.

OF the various features in the quality of cotton, "character" is one property which rates very high in importance and which, peculiarly enough, is one of the hardest factors to define accurately. To quote from Palmer,[1]—

"Of almost equal importance with grade and staple is the attribute of character, though of the three it is probably the least understood. Character has to do with the strength, body, uniformity, and smoothness of the fibers. There are as yet no standards with which to compare it. The classer must judge it by the break and drag and the feeling of the fibers in his hands, guided only by his training and his experience. Investigations to discover the relation of strength in fibers to strength in yarns have been undertaken by the Bureau of Agricultural Economics, and in these investigations it is hoped to find in the near future a basis for the establishment of character standards."

It is with the assistance of the polarizing microscope that we are to judge more accurately the "character" of the cotton we buy. By utilizing the interference colors displayed by cotton fibers when viewed with polarized light, we can go a considerable way toward evaluating the strength and body of a sample.[2] With the addition of a disc-micrometer for the eyepiece, we can have a means of measuring the ribbon-width or fineness of the fiber—another factor which has been recently proved important to the spinnability.

The strength and body of a sample are largely dependent upon the degree of ripeness or maturity of the fibers. The maturity is in turn dependent upon the extent of the development of the so-called secondary portion of the wall. Due to the optical properties of the fibrils that form the framework of this secondary wall, plane-polarized light suffers retardation in passing through these anisotropic particles and assumes definite interference colors. The exact effect is governed by the amount of fibrillous layers penetrated, by their orientations with respect to the fiber axis, and, independently to a large extent, by the degree of thickening. Inasmuch as the primary or outer wall does not seem to have a highly variable composition or particle-orientation, it exhibits very nearly a fixed color under ordinary conditions. Thus with what we might assume as one variable factor in combination with one fixed component, the amount of change to be recorded in the former can be readily determined.

As early as 1858, cotton fibers were known to be anisotropic (doubly refracting) in nature, and 55 years later the crystallinity of cellulose was first confirmed by means of X-ray. Within the last comparatively few years, considerable has been learned about the differences in the two walls. Balls[3] gives the following physical relationships for Egyptian types:

	Primary Wall	Secondary Wall
Tensile strength	1 gm.	5 gm.
Weight per centimeter	.0005 mg.	.001 mg.
Strenth per .001 mg. wgt. per centimeter	2 gm.	5 gm.

From the above figures it is apparent that the development of the secondary wall should be given much consideration if the utmost is desired in yarn and fabric strengths. The mature fiber will also card and spin better and will not have a tendency to nep[4] so quickly in processing. This latter feature will improve the appearance of the yarn or fabric materially, especially if the product is to be dyed, for neps are noted to take on a different shade from the remainder and thus stand out prominently to discourage the manufacturer and buyer alike. The writer has also observed at the Pequot Mills that the action of heat and chemicals in laundering is best withstood by the mature types of fibers.

The apparatus to determine maturity is relatively simple to use and inexpensive—particularly as the first cost is practically the last. The expense of upkeep is almost nothing if the instrument is given even ordinary care. Perhaps the handiest form to the writer is the petrographic microscope, or one having the analyzing prism in the body-tube. To others an instrument having a cap analyzer may perhaps be more suitable. A rotating stage is necessary in either case.

The light source is preferably of fixed intensity and color. Since we are to make color comparisons with known standards, the writer has mounted his microscope on the top of the light source, which in this case is a

References

1. Palmer, Arthur W. "The Commercial Classification of American Cotton." Circular No. 278. U. S. Dept. of Agriculture. 1924.
2. Schwarz, Edward R. "Textiles and the Microscope." McGraw-Hill Book Co., New York. 1934.
3. Balls, W. Lawrence. "Studies in Quality in Cotton." MacMillan & Co., Ltd. London. 1928.
4. Pearson, Norma L. "Neps and Similar Imperfections in Cotton." Technical Bulletin No. 396. U. S. Dept. of Agriculture. 1933.

It is with the greatest pleasure that the writer acknowledges it was largely through the suggestions of Edward R. Schwarz, associate professor of textile engineering, Massachusetts Institute of Technology, that the possibility of commercial application of this optical phenomenon was investigated.

small box with a work panel included. This box is properly insulated and ventilated to take care of the heat of the incandescent lamp within. A "daylight" diffusing glass gives a truer rendition of the colors, while a velvet-covered work panel, with tray for slides and tweezers, completes the convenience of the unit. A "red of the first order" selenite compensator is used to convert the relatively indistinguishable polarizing colors to hues of more positive identification.

The best set-up has been found to be 100 magnifications—obtained by the use of a 10x objective and a 10x ocular. This combination allows the use of two slides (dispensing with the cover-glass) to hold the specimens and has a large field of view and depth of focus. The prisms are placed at 90° with one another (crossed nicols); and the cross-hairs in the eyepiece, at 45° with the prisms. If the selenite is removed, crossed nicols should give a perfectly black background; and upon replacement of the selenite, the background should become magenta (or red of the first order).

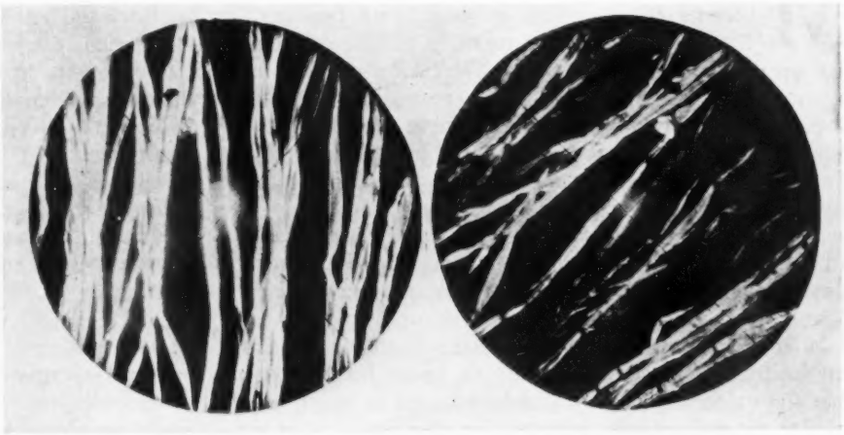
To make a measurement of a sample, about 75 fibers from a classer's "pull" are laid parallel between two slides. In the loading of the slide, make every attempt to prevent bunching-up of the fibers, so that a minimum of time will be spent in the actual counting and evaluating. After a little practice one will be able to lay out the fibers parallel, with remarkable precision. Starting from either side, at approximately the center of the fibers, move the slide slowly across the field and count out exactly 50 fibers in order, using the intersection of the cross-hairs as a point of reference. Stopping on the fiftieth fiber, return to the starting point slowly and evaluate the poorer fibers as follows:

a. Count one point demerit for any fiber having a continuous section 1/10 mm. (about 1/10 of diameter of field of view) or more which is light blue in color.

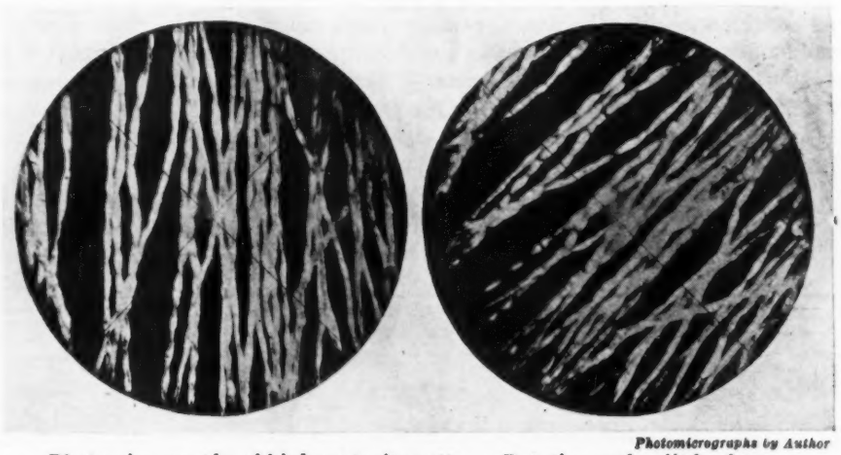
b. Count two points in the same way for any fiber indigo in color.

c. By subtracting from 100 the total count thus acquired in the examination of the 50 fibers, the "maturity rating" of that particular slide is obtained. If a high degree of accuracy is necessary, repeat this operation twice, each with a new set of fibers from the same "pull." It must be here stressed that the color determination must be made only when the fiber in question is parallel to the cross-hair which lies in the same direction as the arrow on the selenite. If the fibers do not appear parallel as they come into view, the stage must be rotated slightly to bring them so before the determination is made. As to the time consumed in making a rating of three slides, the writer can make a pull, extract and count three slides, and compute the result in from 3 to 4 min.

The reader who feels that a measurement made from viewing only about one millimeter of a fiber 25 to 30 mm. in length will lead to unreliable results need only follow through from base to tip those fibers which showed only a section colored light-blue or indigo at the first examination. He will observe many repetitions of such a section. It might also be added that, if one examines the point of fracture on fibers of this type, the occurrence of the fracture at a poor section showing indigo or at a medium section showing light-blue will be most often observed.



Photomicrographs of low-maturity cotton. Note darkening of poor fibers by change to blue or indigo as rotation brings them parallel to cross-hair.



Photomicrographs by Author

Photomicrographs of high-maturity cotton. Rotation makes little change in color.

As a check upon the color determination, it will be noticed that fibers showing indigo will, upon 90° rotation, become orange in color. In the same way, light-blue fibers will become yellow. The highly matured fibers, however, will be yellow-green *and will not change color upon rotation.*

Having made practical use of the above method of evaluating the character of domestic cottons for over a year and a half at the Pequot Mills, the author feels that there is considerable merit in such a system. The maturity rating is of course an arbitrary figure, as determined by the method described; the results, however, are comparative over a sizeable range of fiber types, growths, staple lengths, and diameters. Although not perfect in any sense of the word, it does offer a simple and rapid technique, which has been found clean and reliable enough to be a valuable adjunct to the cotton classer and buyer.

Systematic Cleaning . . .

By Robert Schaellibaum

TRY A FLYING SQUADRON ON THE MACHINES

MILL customs are slower to change than the conditions which were originally responsible for them. The stopping of mills for general cleaning on Saturdays previous to NRA was one of these lagging customs. As long as every machine required one or more attendants, it was of course the proper thing to stop the mill and have all the machines cleaned at one time; but today there is usually one attendant to three lappers, one to several cards, and so on. While one machine is being cleaned by a single worker, two or three other machines must stand idle to no purpose; and the cleaning work proceeds slowly because no more than one cleaner is at work on one machine at one time.

In many of the larger mills extra hands travel from one spinning frame to another to assist in doffing, so that the machines may be started as soon as possible. A similar plan should be adopted for the cleaning of machines. A special team of help should be organized to take care of not only the weekly superficial cleaning, but also the thorough cleaning which is undertaken at greater intervals and which involves taking out the rollers, cleaning them, and giving the machines a thorough oiling. A team consisting of two or three men could stop an opener or lapper on Monday morning, clean it, start it up, and proceed to another machine. From the picker room they could proceed to the card room, and then to the spinning.

For speeders and spinning frames, two teams could be combined in order that each machine would be stopped for as short a time as possible, or the team might be made large enough to take care of the largest machine which it will encounter. Large mills could have more than one team, each assigned to a particular group of machines. These teams would have to be taught by the overseer or second hand of each department, unless a man could be assigned to the team who understands the work of that department.

Members of these teams would soon become specialists in cleaning work. They would learn to do it more quickly and better than other mill hands who are engaged in such occupation only a half day each week—or, in some cases, only once in two or three months. Machines could be cleaned more frequently and thoroughly to the material benefit of the product of the process and the life of each machine. Worn out parts of machines, stuffed oil holes, and other defects would be discovered more quickly and attended to. The repair work would be more evenly distributed over the whole week and the peak load on the machine shop would be eliminated. Machines stopped for repairs could be cleaned first in order that the total stopped time would be shortened.

Weaving Calculations SIMPLIFIED BY CHARTS

Loom Speed	M. Picks Per Loom 40 Hrs.					Weaver's Rates Per M. Picks		Picks Per Inch	M. Picks Per Yard	Weaver's Rates Per Yard or Cut			
	100%	95%	90%	85%	80%	%	Rates			P.P.M. ——%	P.P.M. ——%	P.P.M. ——%	P.P.M. ——%
125	300	285	270	255	240			20	.720				
130	312	296	281	265	250			22	.792				
135	324	308	292	275	259			24	.864				
140	336	319	302	286	269			26	.936				
145	348	331	313	296	278			28	1.008				
146	350	333	315	298	280			30	1.080				
147	353	335	318	300	282			32	1.152				
148	355	337	320	302	284			34	1.224				
149	358	340	322	304	286			36	1.296				
150	360	342	324	306	288			38	1.368				
151	362	344	326	308	290			40	1.440				
152	365	347	329	310	292			42	1.512				
153	367	349	330	312	294			44	1.584				
154	370	352	333	315	296			46	1.656				
155	372	353	335	316	298			48	1.728				
156	374	355	337	318	299			50	1.800				
157	377	358	339	320	302			52	1.872				
158	379	360	341	322	303			54	1.944				
159	382	363	344	325	306			56	2.016				
160	384	365	346	326	307			58	2.088				
161	386	367	347	328	309			60	2.160				
162	389	370	350	331	311			62	2.232				
163	391	371	352	332	313			64	2.304				
164	394	374	355	335	315			66	2.376				
165	396	376	356	337	317			68	2.448				
170	408	388	367	347	326			70	2.520				
175	420	399	378	357	336			72	2.592				
180	432	410	389	367	346			74	2.664				
185	444	422	400	377	355			76	2.736				
190	456	433	410	388	365			78	2.808				
								80	2.880				
								82	2.952				
								84	3.024				
								86	3.096				
								88	3.168				

Rate per M. Picks = Weekly Wage ÷ [Looms to Weaver × M. Picks per Loom (desired speed and %)]
Rate per Yard = Rate per M. Picks × M. Picks perYard (Adjacent to picks per inch).
Rate per Cut = Rate per yard × yards to cut.
Enter Weavers Pick Rates opposite Loom Speeds. Rates per Yard or Cut opposite picks per Inch.
Use blank lines to left for additional Loom Speeds. M. Picks = Loom Speeds × 2.40 × % Production.

Chart for computing weaver's piece rates

Multiplier						Picks Per Inch	Yards Per Loom Week—40 Hrs.				
100%	95%	90%	85%	80%	75%		P.P.M. —%	P.P.M. —%	P.P.M. —%	P.P.M. —%	P.P.M. —%
333	316	300	283	266	250	20					
303	288	273	258	242	227	22					
278	264	250	236	222	209	24					
256	243	230	218	205	192	26					
238	226	214	202	190	179	28					
222	211	200	189	178	167	30					
208	198	187	177	166	156	32					
196	186	176	167	157	147	34					
185	176	167	157	148	139	36					
175	166	158	149	140	131	38					
167	159	150	142	134	125	40					
159	151	143	135	127	119	42					
152	144	137	129	122	114	44					
145	138	131	123	116	109	46					
139	132	125	118	111	104	48					
133	126	120	113	106	100	50					
128	122	115	109	102	96	52					
123	117	111	105	98	92	54					
119	113	107	101	95	89	56					
115	109	104	98	92	86	58					
111	105	100	94	89	83	60					
108	103	97	92	86	81	62					
104	99	94	88	83	78	64					
101	96	91	86	81	76	66					
98	93	88	83	78	74	68					
95	90	86	81	76	71	70					
93	88	84	79	74	70	72					
90	86	81	77	72	68	74					
88	84	79	75	70	66	76					
85	81	77	72	68	64	78					
83	79	75	71	66	62	80					
81	77	73	69	65	61	82					
79	75	71	67	63	59	84					
78	74	70	66	62	58	86					
76	72	68	65	61	57	88					

Yards per Loom Week = Loom Speed (Picks per Min.) ÷ Multiplier for Each Pick Goods at desired % Production (Point off 2 places).

Enter yards per Loom in Blank Columns under your different Normal Loom Speeds and opposite your different Pick Goods.

Chart for computing yards per loom week of 40 hours

Courtesy of Rhyne Moore & Thies, textile cost engineers, Charlotte, N. C.

Knitted slip-over designed to radiate uniform heat throughout the fabric, as indicated by thermometers

Heated Textiles

FABRICS HAVE BEEN USED TO HOLD HEAT—NOW THEY RADIATE IT

IT IS winter. An airplane is roaring forward through a gathering sleet storm. Ice is forming on the wings. Heavier and heavier becomes the plane. The pilot endeavors to gain altitude, but loses it instead. It is impossible to see the ground—to pick a safe place to land. The crash is inevitable.

It was largely because of a desire to obviate such tragedies as this that a few years ago William Colvin, Jr., of Troy, N. Y., set about to produce an airplane fabric which would give off heat. He succeeded and has moved on from that beginning to the development of the same heat-radiating property in many other textiles—sweaters, rugs, automobile upholstery. Although none of the products has as yet reached a commercial stage, this interesting development tickles the imagination.

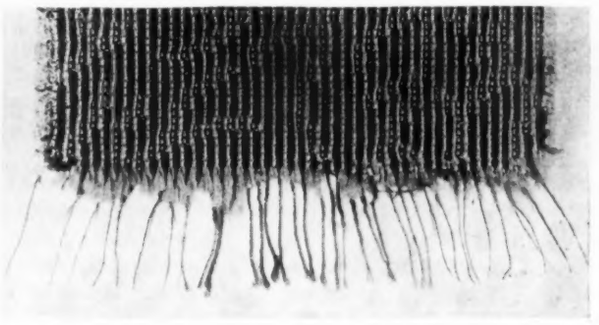
The initial step which Mr. Colvin had to take to accomplish his objective was, according to his patent No. 1,965,542 (granted July 3), the production of "threads or yarns composed partially of wire and partially of textile fibers, but which are endowed with characteristics of appearance, softness, flexibility, give, and resistance to kinking and snarling fairly comparable to like threads or yarns composed entirely of textile fibers." The inventor believes that he is the first to produce a wire-reinforced yarn which can be woven or knitted on ordinary textile machinery with the same facility as pure textile yarns. He can even produce a thread, he says, which is entirely suitable for use on ordinary sewing machines.

The wire core for Mr. Colvin's yarns is preferably made of "commercially pure copper or a metal which has or can be processed to have the desirable characteristics of copper." This wire, which may be as fine for example as No. 40 (0.0031 in. in diameter), is first covered with a protective film or flexible coating of varnish or enamel having a thickness of perhaps 0.00015 to 0.0005 in. If the fabric is to be "electrified" for heating purposes, the enamel must have dielectric properties; but Mr. Colvin has not confined the use of his invention to the heating of textiles, as wire reinforcing would be useful in many cases, he has reasoned, to provide strength alone.

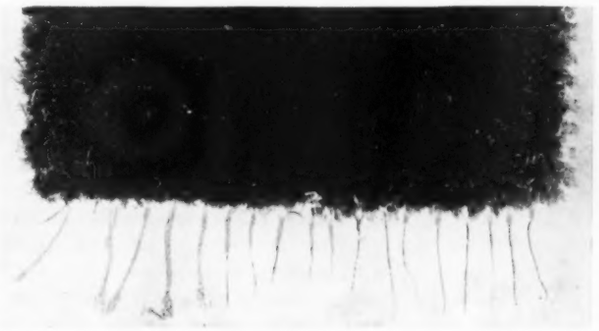
The coated wire is then covered with two layers or wrappings of fibrous material, such as fine yarns of silk, rayon, cotton, or wool. The most essential feature of the whole invention is the fact that the second layer of threads is laid in a direction opposite to the first, in order that the completed yarn will be balanced in twist and have no tendency to snarl or kink.

We have examined many wired fabrics, both woven and knitted, which Mr. Colvin has had produced to his specifications. Many of them are remarkably soft and flexible, and it is not easy to believe that they contain wire until they are unraveled and the yarns are carefully examined. The fabrics run the gamut from ducks to rugs, from upholstery to hosiery. We have seen Mr. Colvin lay a rug on the floor and plug an attached cord into a light socket. In a few moments a uniform heat has emanated from all parts of the rug surface. Likewise he has plugged in a cord from a soft, woolly sweater, with the same effect. He has demonstrated how various portions of an airplane fabric can be heated independently at the will of the pilot through separate electrical circuits in the cloth. Also for our edification, he has produced heat in a wall drapery.

Electrically the woven or knitted wires are joined in series parallel; and of course the heat results, as in most electrical heating appliances, from the dissipation of elec-



Upholstery fabric woven with wires to permit heating by electricity



Rug containing wires for heating, showing some protruding wires uncovered

tric energy as the current overcomes the resistance of the wires. When asked regarding the amount of current consumed, Mr. Colvin pointed out that this will vary greatly with the design of the article and that the design in turn will be governed by the amount of heat wanted for any specific purpose. A large bath rug, for example, which is in use but a small fraction of the day, might consume about 60% of the current required by an average flat iron, he said, while some articles of clothing might be heated economically from a dry battery smaller than a flashlight battery and carried in the pocket. Automobile and airplane fabrics would be heated from the motor batteries. A number of the articles have already been passed by the Underwriters' Laboratories, Mr. Colvin stated, and no danger to the textiles can be expected at a heat below 104° C.

It has already been remarked that the wire cores afford strength as well as heat. In addition they prevent shrinking and stretching—yes, they have already been applied to shirt-collar fabric experimentally with reported success. Wired fabric may be applied to acoustical uses, just as bare wires are often applied now. Cores can be made to afford rigidity, as in cloth signs, millinery, neckties, etc.

Nothing is more astonishing about Mr. Colvin's invention than the extent of the uses he proposes for it. At first thought many of them sound fantastic; but more careful consideration discloses interesting possibilities in them, especially in connection with certain special fields of human activity. We have mentioned several of the products planned. Proposed uses where heat is the principal factor include the following: airplane wings (although strength is also of great importance here), automobile upholstery and robes, bedding, gloves, socks, sweaters, uniforms for aviators and others, wall covering, hospital supplies, mine clothes, and rugs. Uses where strength is the important factor include awnings, bags, book bindings, cables, brassieres, collars, corsets, shoes, curtains, fire hose (heat might be helpful in drying the hose), garden hose, hammocks, fire nets, parachutes, power-transmission belts, papermakers' felts, sails, filters, sewing threads, tents, tire cords, tobacco cloths, trunk coverings, umbrellas, upholstery, and window shades.

Many of the first looms employed by the cotton mills of this country were built by S. Colvin, of Riverpoint, R. I. William Colvin, Jr., is of the same family. He is president of the converting firm of Boswell & Davidson, Inc., Cohoes, N. Y. A new company now being organized to engage in the handling of wired textiles will be known as Colvin Metaltex, Inc., Cohoes, N. Y.

Woolen-Card Grinding

By P. M. Crofts

RESULTS DEPEND ON CONDITION OF GRINDER

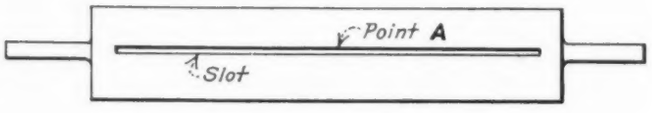
THE fundamental requirements of woolen carding are straight lines and perfect circles. Before the cards are clothed, the rolls should be thoroughly checked with these two requirements in mind. After the clothing, it is the grinder which governs the lines and, to a lesser degree, the circles.

Frequent and light grindings are essential to good carding. With suitable stock the quality of the yarn depends mostly upon the quality of the roving from the cards. Too many mills are not properly balanced in their carding and spinning, in that the spinning capacity is equal to, and often greater than, the full output of the cards. Consequently, carders are handicapped in keeping their machines in proper condition. An over-capacity in carding is better.

The two grinders most widely used are the traverse and roll types. The writer prefers the traverse type because his experience indicates that it produces a point more free from hooks and otherwise more satisfactory.

Traverse grinders should be flushed thoroughly inside with kerosene at regular intervals. When in use the shell should be kept clean and well oiled, as dirt is thrown from the base of the wire onto the grinder, causing strain on the whole mechanism, shell included. With the best of care, traverse grinders that remain true throughout their entire length, even after a few years of use, are exceptional. The chief source of trouble is in the slot of the shell.

The accompanying sketch shows a grinder with the wheel, pulley, and gearing removed. The shell is made of 5-in. tube steel with a slot cut as shown, in which a fork attached to the wheel slides back and forth with the wheel across the shell, the locomotion being provided by a lug on a chain inside. The grinder invariably becomes out of true at or near the center. The slot has a tendency to contract near the point *A* after considerable use.



All-important shell of traverse grinder

The writer has seen this happen on new grinders to such an extent that it has caused the fork to bind and stop the wheel. The point of contraction leaves a low place in the shell; and when the grinder is in motion, the throw of the wheel causes the wheel surface to strike hard at the center of the roll being ground, while at the ends it strikes lightly or not at all. This is especially noticeable when grinding a newly clothed surface. Repeated grindings with such a machine result in a concave surface. Most traverse grinders will eventually become smaller in shell diameter at the center than at the ends, due to wear from the wheel. Some grinders may be readily trued by means of a good lathe and a fine emery wheel on a small motor attached to the lathe carriage. It should then be rebalanced. This should not be tried unless there is ample adjustment at the hub to take care of the reduced diameter of the shell.

After we had purchased two new grinders about twelve years ago which developed contracted slots in a very short time, the manufacturer made us one with a shell of nearly twice the thickness ordinarily provided. This machine is perfectly true today. Good grinders are essential to best results in carding, and the mill should see to it that the shell of any machine which it plans to purchase is sufficiently sturdy. It would be desirable, if it were possible, to have the shell reinforced inside.

President Roosevelt

It Was Said

DURING THE MONTH

BY THESE MEN . . .

Robert Amory

PRESIDENT ROOSEVELT: Some people try to tell me that we must make up our minds that for the future we shall permanently have millions of unemployed just as other countries have had them for over a decade. What may be necessary for those countries is not my responsibility to determine. But as for this country, I stand or fall by my refusal to accept as a necessary condition of our future a permanent body of unemployed.

ROBERT AMORY, treasurer, Nashua Mfg. Co.: I am willing to make a flat decision that price-fixing cannot be enforced: in the first place, because it is too complicated, and in the second place because there is no real human desire to enforce it. Anyone desiring to break a price-fixing agreement is thoroughly protected by the fact that he is not going to tell that he has broken the agreement, and the buyer who buys from him is not going to tell that he broke the agreement. There are infinite ways of breaking the agreement without having it appear on the invoice.

ARTHUR BESSE, president, National Association of Wool Manufacturers: I believe the (Winant) report should contribute to the establishment of better labor relationships. . . . I cannot refrain, however, from expressing my disappointment at the Board's failure to take cognizance of the manner in which this strike has been conducted. The Board owes it to this industry, to other industries, and to the public to condemn in no uncertain terms the unbridled lawlessness which accompanied this strike and which interfered with the operation of so many units where the workers themselves did not want to strike.

MALCOLM MUIR, president, McGraw-Hill Publishing Co.: Last year the Administration accepted labor leadership as enlightened leadership and placed its faith in it. But labor leaders, in my opinion, have not justified that faith. Ignoring all else, they have used NRA and the New Deal generally, as a union organization movement. . . . The Administration is faced with a problem of changing its attitude toward those who are now dominating union policies. It cannot afford, at the expense of public confidence, to be held responsible for the untoward and regrettable occurrences that have marked labor relationships and jeopardized recovery during the recent months.

Malcolm Muir

H. I. HARRIMAN, president, Chamber of Commerce of the U. S.: The (textile) strike was called in an industry where much less than half of the industrial workers desired to strike. The strike has been conducted with violence, with intimidation and with destruction of property. Thus and thus only has it been made effective. . . . It clearly indicates to me that the great privilege which labor has rightly received of collective bargaining and of organization, carries with it obligations to the public which can only be assured by the incorporation of trade unions, and full publicity of and full liability for their acts.

JOHN C. GALL, associate counsel, National Association of Cotton Manufacturers (in letter to Howard E. Coffin defining the term "without discrimination" as used by President Roosevelt in urging employers to take back strikers): There is no obligation to re-employ any man who has voluntarily severed his employment relation if to re-employ him necessitates the discharge of a person who has been employed to take his place. Whatever may be the equity of a striker, the equity of the other is greater and clearer. This was never more obvious than in a time of national emergency due to wide-spread unemployment. As Mr. Justice Brandeis has so well pointed out, there is no such thing as an absolute right to strike. This right, like all others, is a qualified one, and where people voluntarily sever their employment relationship, they cannot very well be heard to complain if others supplant them.

UNITED TEXTILE WORKERS Local in the Minette Mills, Grover, N. C. (in letter to mill management announcing that the officers of the local had decided to discontinue the union there): We now feel that we do not need to be unionized to work together, as we have always worked in perfect harmony together. Any little grievance arising has been promptly looked into and adjusted satisfactorily to all. You have always raised our wages when conditions were justified without being asked to do so. . . . We feel that you have always given us a square deal. . . . Since we have joined the union we find they have practiced many things that we do not and will not approve of. . . . We find it better to give our dues to the church than to the union.

J. FREDERICK TALCOTT, president, James Talcott, Inc.: The settlement of the textile strike may mark the turning point of business and foreshadow the end of the present industrial depression. Since the settlement, textile activity has definitely improved. Already we note in our business a very distinct increase in activity, and a tendency toward better prices. . . . The moral effect, too, of the cessation of the strike at a mere word from the President, whose assurance of fair dealing was sufficient in the minds of all parties, speaks volumes.

PAUL WOOTON, Washington correspondent, TEXTILE WORLD: It was apparent from the first that the chance of the union winning the textile strike was faint and that Francis J. Gorman, a man of very limited capacity for leadership, was not the man to undertake to direct a struggle of unusual complexity. He has given a lesson in how not to handle a strike.

Arthur Besse

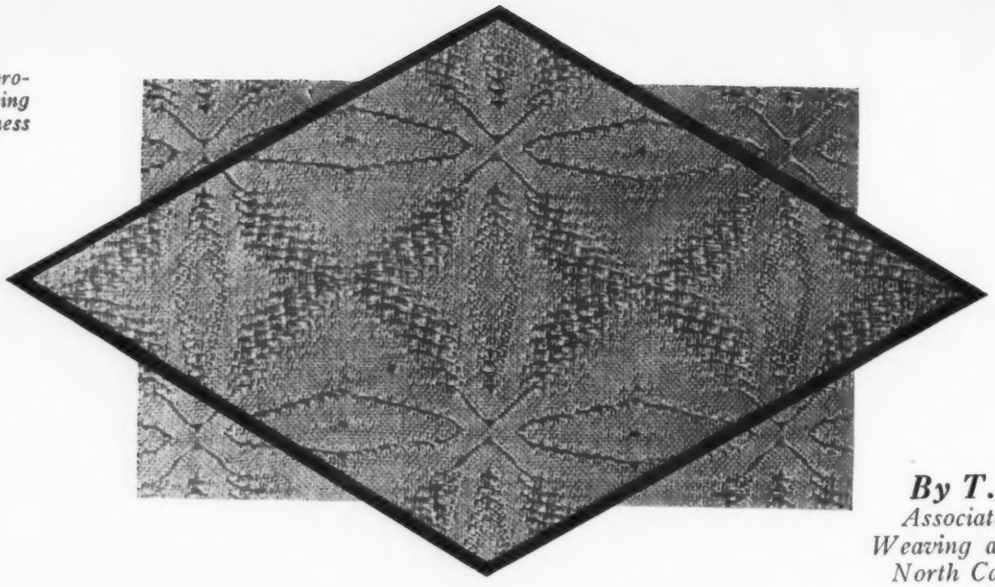


Fig. 10. Fabric produced by varying twelve-harness twill

By T. R. Hart
Associate Professor
Weaving and Designing
North Carolina State College

Diamond Drafts...

VARIATIONS WHICH PRODUCE EXTENSIVE PATTERNS ON FEW HARNESSES

DIAMOND DRAFTS and variations of diamond drafts afford designers wide scope for the creation of original patterns that are especially suitable for dress goods, sports goods, and women's suitings and coatings. These designs are really enlargements or variations of point draws, and they permit the production of large and effective patterns on a comparatively small number of harnesses.

Fig. 1 is an eight-harness twill. Fig. 2 shows the design which results when this twill is woven on a point draw. By reversing Fig. 2 filling way, one obtains a single diamond design, Fig. 3 which can also be woven on a point draw or, as it is often called, a single diamond draft.

Fig. 4 shows a double diamond design which is obtained by drawing in two repeats of the eight-harness twill and then reversing the draft for two more repeats. It will be noticed that this design shows two complete diamonds, one within the other. Fig. 5 is a triple diamond design made on the same principle.

All of these designs can be woven on eight harnesses, and even larger patterns can be made on the same number of harnesses by drawing in more repeats of the base weave before reversing the drawing-in draft.

Fig. 6 shows one method of varying diamond drafts to add variety to the pattern. In this design three repeats of the base weave are drawn in, and then the draft is reversed for one repeat. Next two more repeats of the base weave are drawn in and the draft is again reversed for one repeat. By changing the manner of drawing in at definite intervals, a large number of patterns can be produced on this principle.

Another method of varying diamond drafts is illustrated at Figs. 7, 8, and 9. In this method the first step is to make the chain plan for the design. After the base weave is selected, it is put on design paper, reversed filling way, and then reversed again until it joins correctly with the first pick of the base weave. Fig. 7 is a chain plan made on this principle. Figs. 8 and 9 show two designs which are made from this chain plan. It can readily be seen that by using different drawing-in drafts a large number of different patterns can be made from each twill weave. Two repeats, both warp way and filling way, of these designs are given in order to show more clearly the type of design which results when this method of altering diamond drafts is used.

Fig. 10 shows a fabric which was woven from a design made by a third method of varying diamond drafts. The first step in producing fabrics of this type is to decide upon the base weave, as that determines the number of harnesses required to weave the pattern. For instance, if a twelve-harness twill is decided upon, then the pattern can be woven on twelve harnesses. As these fabrics are generally woven with rayon filling, filling-flush weaves are used so as to take full advantage of the decorative qualities of the rayon. The best effects are obtained when a twill is selected which has a filling float of five or seven picks and then weaves plain throughout the rest of the repeat.

The base weave for Fig. 10 is the twelve-harness twill, shown at Fig. 11, which floats the filling for five picks and then weaves plain for seven picks.

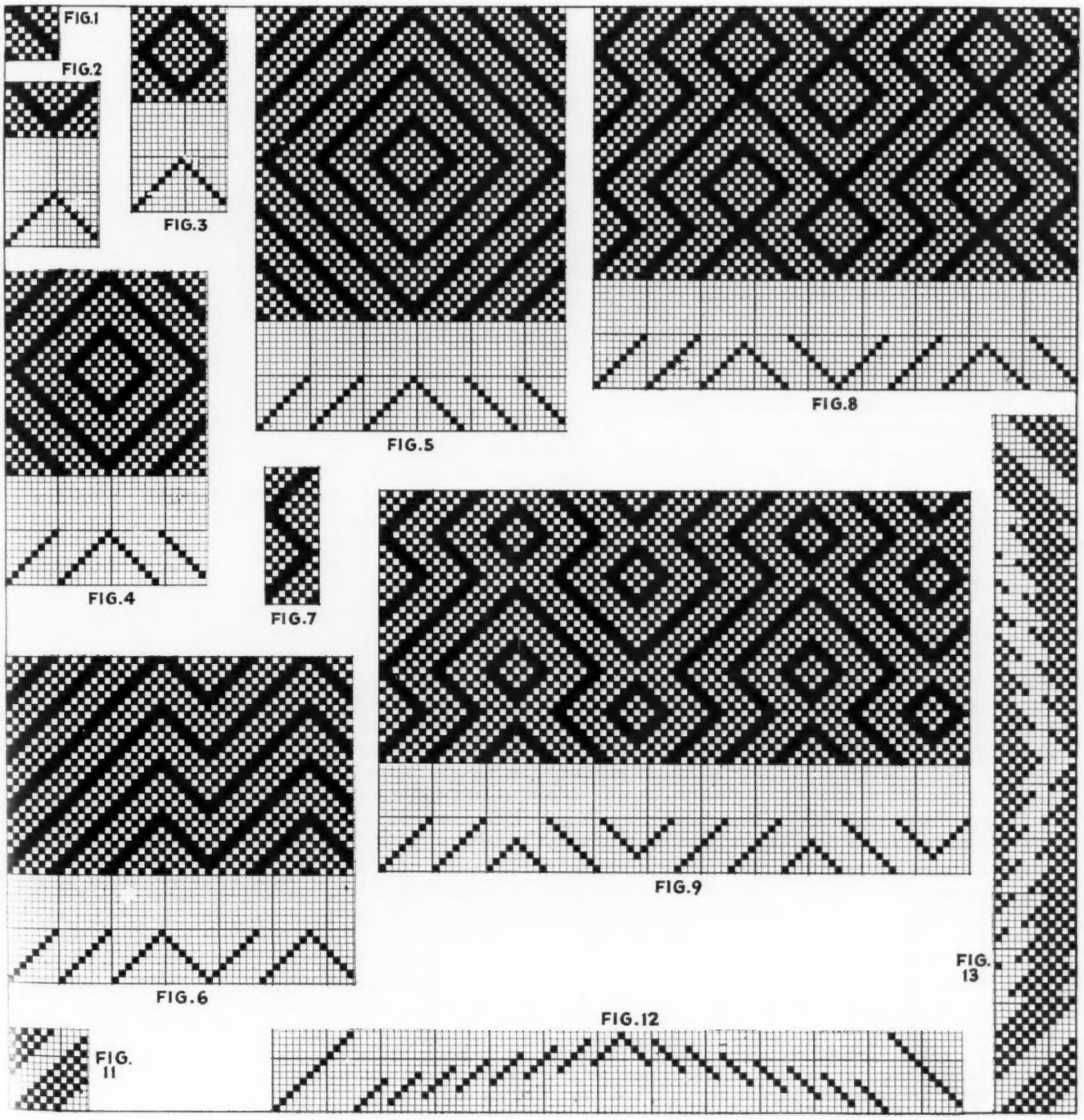
After deciding upon the base weave to be used, the next step in producing these patterns is to develop the drawing-in draft. By referring to Fig. 12 it will be seen that one repeat of the base weave is drawn in and then five ends are drawn in straight on the first five harnesses, five more ends are drawn in on harnesses two to six, inclusive, and this is continued until eight groups of five ends have been drawn in, one harness shaft being stepped

up when beginning each group. Then the drawing-in draft is reversed.

In making these drawing-in drafts, it is necessary to bear in mind that a part of the base twill is weaving plain. Consequently, the plain in the last end of each group must weave differently from the plain in the first end of the succeeding group. Two ends lying side by side and weaving alike at certain intervals will produce a "flat" or cord effect and thus detract from the pattern. For instance, the last end in the first group of five is drawn on the fifth harness. Consequently the first end of the second group of five must be drawn on an even harness to prevent adjoining ends from weaving alike in the plain section.

The chain plans for patterns of this type are developed in the same manner as the drawing-in drafts. Fig. 13 is the chain plan for Fig. 10. Thus, by referring to Fig. 12, it will be seen that a repeat of the base weave is drawn in so the first twelve picks in the chain plan will be a repeat of the base weave. The five ends are drawn in on harnesses one to five, inclusive. Therefore, the next five picks in the chain plan will be picks one to five, inclusive, of the base weave. The second group of five ends are drawn in on harnesses two to six, inclusive. This means that the third group in the chain plan will be picks two to six, inclusive, of the base weave. By following the drawing-in draft in the manner just described, the chain plan can be built up until it repeats on the same number of picks as there are ends in the drawing-in draft.

Thus it is easy to see how the hundreds of twill weaves and the numerous variations possible in diamond drafts give designers a wide range for new and original patterns.



CONSTANT SURVEILLANCE NECESSARY IN

Treatment of Water

FOR USE IN FINISHING PLANTS

By Graham Fisher
Chemist, Union Bleachery

IN AN earlier article (TEXTILE WORLD, July, 1934) it was shown that the impurities in raw water which cause the greatest harm in finishing plants are iron, turbidity, hardness, algae, aluminum, and acidity. In the present article will be described the way in which water containing these impurities can be treated to make it suitable for use in the mill. While the discussion will be based largely on the methods which the author has found suitable for purifying water of the type usually encountered in the Piedmont section of North Carolina and South Carolina, it will not be limited to the procedure followed in any one particular plant. Rather, the endeavor will be made to show how the method of treatment can be adapted to suit local conditions. In addition, attention will be called to some of the more recent developments in water treatment and to certain points which are often overlooked in the installation and operation of purification systems. Reference to the accompanying diagram will show the layout of a typical plant and the sequence of operations.

For practical purposes, determination of the turbidity, hydrogen ion concentration, carbon dioxide, alkalinity, iron, aluminum, and hardness will, as a rule, enable one to decide upon the treatment which is necessary. In the case of a water having a turbidity of 220 p.p.m., an alkalinity of 8, a carbon dioxide content of 3, an iron content of 0.3, an aluminum content of 0.2, a pH of 6.5, and a temporary hardness of 60, removal of the turbidity is the first step. This, if properly done, will also remove the iron and aluminum. If the water has turbidity of above 500 p.p.m, it is advantageous to have a lake or pond constructed with a stilling wall (see diagram) to permit settling of the particles, thus lowering the amount of coagulants required.

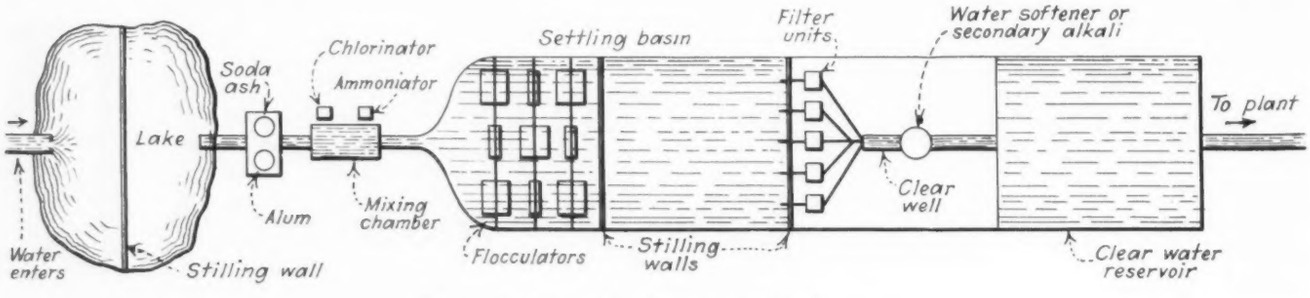
An approximate dosage of ¾ grain of alum and ½ grain of soda ash per gallon will thoroughly "crack" the water mentioned above. On the other hand, a water with a high pH will require much experimenting with sulfuric acid, alum, and soda ash before a proper mixture will be found. In case of such a water, a large storage basin will aid, by lowering the pH (from carbon dioxide in air) and allowing a corresponding precipitation.

It should be emphasized that perfect coagulation is necessary if iron and aluminum are to be removed. Complete flocculation of particles is accomplished only if the dosage of coagulants is exactly right. Improper dosage may remove many impurities and will often give a floc which looks perfect, but it will not give a perfect water.

In order to obtain perfect water, it is necessary to add sufficient alkali to remove the carbon dioxide and sufficient alum (the chemical generally used) to cause coagulation. This means the addition of enough soda ash to raise the pH to about 8, and sufficient alum to drop the pH to 6.5. The soda ash should be added about three baffles before the alum. When using alum, it is necessary, of course, to keep an accurate check on the pH to prevent aluminum from carrying through the filter. Occasionally a water carrying an extremely high alkalinity and pH will be encountered. It is possible to "crack" this water by the use of alum, but the cost is prohibitive. Due to its high alkalinity, the water will pick up aluminum from the soils over which the water flows, and this aluminum can be made to act as a coagulant by the addition of sulfuric acid.

For the chemicals to perform their functions properly, a thorough mixing is essential. An agitator or a baffle system may be used. The baffle system has the advantage that there are no breakable parts and, once erected, it is quite permanent. An agitator must have sufficient retention to permit thorough mixing without high speeds, as too much agitation will prevent particles from forming, or will tend to break them up if they have already formed. In a "down and over" baffle system, the water and coagulants should be entered fast and should be slowed by changing the relative positions of the baffles. This will aid in the formation and growth of the floc.

During the last few years mechanical flocculators have gained prominence for treating the water after the coagulants have been thoroughly mixed with it. These flocculators consist of large paddle wheels and a stilling wall, which cause formation of a larger floc and consequently a more rapid settling of particles. The flocculators have several speeds to allow for changes in composition of the raw water. After the water leaves the coagulating basin, it passes slowly through a long settling basin to allow all but the finest size of floc to settle. If the water



Schematic layout of textile water purification plant

has a turbidity of above 30, a settling time of at least 2 hr. is necessary. The settling basin should be in the form of a wide V-shaped trough, so that the settled floc can be easily washed out of the bottom into a drain.

From the settling basin the clarified water—which now contains only a small floc, consisting mainly of aluminum oxide hydrate—passes directly to the filters. Of the two types of filters in general use (pressure filters and gravity filters), pressure filters are effective only when the water is entering with a minimum pressure of 15 lb. per sq.in. and are generally employed on a water in which the impurities are low. They are frequently used on untreated water. Gravity filters are used where the raw water contains a high amount of impurities. The high-pressure filters have a deeper layer of sand and act something like a strainer; the gravity types are a carefully built up structure to support the filter film. This is a film of microscopic thickness and is formed by the small floc which was not removed in the settling basin. After backwashing a filter, it will require from 10 to 20 min. for the film to form; and, if sufficient time is not given, aluminum will be found in the finished water. This film is delicate and, once formed, should never be jerked by opening valves too suddenly; otherwise aluminum will be carried through and lumps will be formed in the filter sand, thus impairing its efficiency.

Water leaving the filters should be of zero turbidity and should have a pH of 6.5. To avoid attacking the exposed metal parts, the pH must be raised to a point where no free CO_2 will be found in the water (generally from 7.7 to 8.1). This is accomplished by a secondary alkali treatment with lime, soda ash, sodium silicate, sodium phosphate, etc. (It should be noted that in case a zeolite softener is used, under the conditions to be mentioned later, no secondary alkaline treatment is necessary.) Soda ash is more generally employed and is both cheap and effective. Recently, the sodium phosphates have come into prominence. These build up and buffer the pH, and some have the power of dissolving calcium and magnesium soaps. "Calgon" a mixture of phosphates, consisting mainly of sodium hexametaphosphate, has recently been placed on the market and is now finding its way into water treatment. Much research needs to be done on the phosphates, however, to discover their full possibilities. The secondary alkaline treatment will cut down and eventually eliminate corrosion throughout the water system.

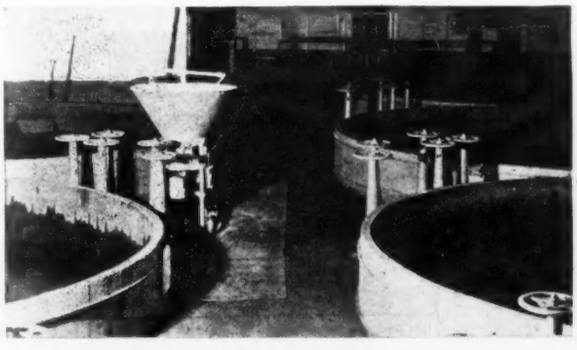
It is advisable to raise the pH slowly over a period of months to avoid a sudden cutting loose of the rust which has accumulated in the pipe lines. Since the absorption of carbon dioxide from the air will cause the pH to drop, the pH should be raised about 0.5 above the desired point if the water is to stand over a period of time before being used. The effectiveness of this treatment will be noticeable throughout the plant and in the boilers. For example, after using water at its proper pH for a few weeks, one will note that the tubercles formed on boiler walls by raw or improperly treated water will begin to lose their core, then will become a mere shell, and finally will disappear. At the same time, the boiler scale will turn white, flake off, and eventually vanish. The removal of carbon dioxide by alkalinity will prevent such formations in the future, providing the hardness is removed.

Water with a hardness of less than 50 p.p.m. is generally considered soft enough for textile use, as the secondary alkaline treatment overcomes this partially. If the water has a greater hardness which is not removed by coagulating and subsequent treatment, it is necessary to put in a water softener of the zeolite type. Zeolite systems will deliver a soft water at a fraction of the cost of the trouble which will result from hardness.

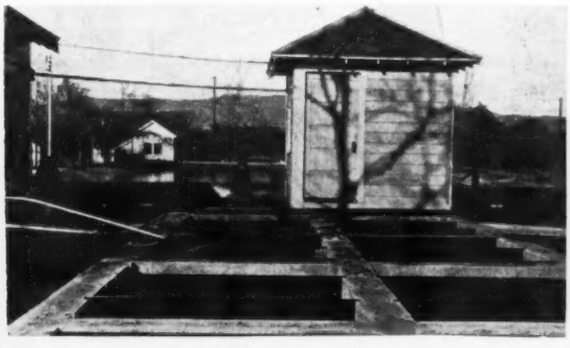
Algae can be eliminated by treatment with copper sulphate; 1 lb. per million gallons will remove effectively the most hardy types. Needless to say, perhaps, this treatment is dangerous if the water is to be used for drinking purposes. The copper sulphate is applied by means of a boat in the storage basin.

Although there is still some controversy as to their merits, pre-chlorination and pre-ammoniation are coming more into general use. Pre-chlorination in itself is valuable, especially for the removal of iron. It provides a strong oxidizing agent and eliminates the necessity for aerating. It will effectively kill bacteria and prevent algae growths, but when used alone, its efficiency is impaired, due to the instability of its solution. Best results are obtained by combining it with pre-ammoniation. This combination causes the formation of the chloramines, which are more stable than a solution of chlorine. These compounds break down slowly, thus providing a steady oxidizing action, and will kill and prevent the growth of bacteria and algae throughout the entire cold-water system. Dosage so as to provide a chlorine content of 0.3 p.p.m. on a finished water will make it safe for drinking purposes. If the water is to be used for drinking, the ammonia will make it more palatable by removal of organic odor and taste. By removing stabilizing organic compounds, prechlorination and ammoniation will materially lower the amount of coagulants needed.

Finally it should be emphasized that raw water changes in its characteristics almost from day to day; therefore its purification should be under strict control.



Baffle system or mixer at Union Bleachery



Soda-ash feeder and filter beds

Size 8½ Overstocked

A FREQUENT BUT UNNECESSARY EVENT IN FULL-FASHIONED MILLS

By Milton M. Abrams
Ajax Hosiery Mills, Phoenixville, Pa.

MANY full-fashioned hosiery mills find only too frequently that they have overknit considerably on one or two odd sizes of a particular style. This often happens on size 8½, for example. As a size such as this is difficult to dispose of, it usually is necessary to sell the overstock at a loss. These unnecessary losses can be avoided if the procedure described below is followed.

Too often the decision is left to the knitting department as to the size scale on which the footers should run. Sometimes all styles are put on a permanent size scale, and the footers kept to this scale month after month. A record of the size scale ordered on every style manufactured by the mill would disclose that in many instances the size scale of one style varies from the size scale of another. It is essential, therefore, that all orders received be tabulated to show the size scale required for each style. This will take only a few minutes' work each day, but may save many dollars for the company.

It is not necessary to maintain an elaborate record; just a simple sheet for each style and a column for each size. If the style is a popular one and moves quickly, a total of the orders received should be taken off every week or ten days. If the style does not move so freely, every two or three weeks is often enough to take a total. These figures are vital if one is to keep a balanced assortment. Fig. 1 shows form suitable for tabulating orders.

REQUISITIONS AND QUANTITY FOOTED
STYLE *1000*

REQ. NO.	DATE	MACH. NO.	SIZE	DOZ	DATE	DOZ. KNIT	REQ. NO.	DATE	MACH. NO.	SIZE	DOZ.	DATE	DOZ. KNIT
1035	2/1	34	9	60	2/2	30							
					2/3	30							
1036	2/1	35	9½	90	2/2	30							
					2/3	20							
					2/4	30							
					2/5	10							
1037	2/1	33	10½	30	2/2	20							
					2/3	30							
1056	2/4	34	8½	30	2/4	10							
					2/5	20							

Fig. 1. Left. Form for tabulating orders.

Fig. 2. Below. Showing dozens needed to balance style.

DOZENS NEEDED TO BALANCE STYLE
DATE *May 5 1934* STYLE *1000*

	Total	8½	9	9½	10	10½
In Gray stock		120	250	460	380	100
In Process		60	90	120	160	40
Total		180	340	580	540	140
Orders received		205	372	564	446½	210½
Sizes knitted		180	340	580	540	140
Requirements over				16	93½	
Requirements short		25	32			70½
Permanent size assortment needed to balance		200	300	500	400	100
Assignments to footers		320	350	500	300	180
Date assigned		2/ Reg. = 1037 60-3 2/ Reg. = 1036-90		2/ Reg. = 1035-30-33 2/ Reg. = 1036-30-33		8½

FOOTERS' ASSIGNMENT

DATE *2/11/34*

FOOTER NO. *34*

YOU ARE NOT TO FOOT *60* DOZEN

SIZE *9* OF STYLE *1000*

RETURN THIS SLIP TO PLANNING DEPT. WHEN ASSIGNMENT IS COMPLETED

NO. *125*

Fig. 3. (At left)

SIZE SCALE OF ORDERS RECEIVED
STYLE *500*

8	8½	9	9½	10	10½	11	8	8½	9	9½	10	10½	11
1	3	7½	15	10	5	2							
	9	12	30	15	4								
½	6	8	12	10⅓	3								
10	40	80	120	100	50	10							
3	8¾	17½	24¾	21½	10	2½							
2	6	15	30	20	10	4							
6	17½	35	49½	43	20	5							
22½	89¼	175	271¼	220	102	23½							

Fig. 4. Above.

The totals taken off for the various styles ordered are used as a basis for assigning size assortments to the footers. Footers should be given written instructions as to what size to foot. In a small plant of three or four footers oral instructions might be satisfactory; but in a large plant—particularly one in which two or more styles are made — this cannot work out satisfactorily. It is human to err, and errors will occur. Footers will overfoot on a size, they will change over to another size when they should not, the foreman will forget what size he has given out, and all will be confusion. On the other hand, with written or printed instructions, there is little chance for errors.

The totals for each style calculated from orders received are taken and each is entered on a separate sheet. Fig. 2 shows a form which can be employed for showing the number of dozens needed to balance the style. From "Requirements Over" and "Requirements Short" can be ascertained the dozens required to balance the assortment to conform with the "Permanent Size Assortment."

Fig. 3 shows the assignment blank carrying the written instructions for the footer. No footer should be permitted to operate his machine without an assignment. This assignment blank should be displayed prominently on or near the machine, so that the foreman can check on it if he so desires. After the order is knit, the slip should be turned in to the gray-goods planning department and a new slip should be assigned to the footer.

Fig. 4 is a form for tabulating all the assignments for each style. It permits the planning department to see at a glance which machines are on any particular style and the quantity that has been footed against the requisitions.

The form shown in Fig. 1 can be used also for checking on the legging department. The record shows the total dozens ordered on each style, and from it can be calculated how many leggers to keep on a style. These calculations enable the knitting department to arrange its set-up of machines intelligently according to the volume sold on the various styles, and thus to minimize the loss of production and money which would result from continually changing from one style to another.

THOROUGH SCOUR PREREQUISITE TO

Level Dyeings

ON DULL-LUSTER RAYON HOSIERY

By W. H. Hand

OF THE defects encountered in dyeing hosiery made from low-luster yarns, streaks of various types are among the more troublesome. At times zebra stripes and similar faults are apparently due to some imperfection in the yarn itself, and the best the dyer can do is to cover them as well as he can. In other instances proper scouring and dyeing of the hosiery will enable him to avoid the streaky appearance.

The methods employed in dyeing low-luster hosiery differ only in detail from those followed with stockings knit with the more lustrous yarns. Ordinarily either the two-bath or the split-bath method is used, although the one-bath process works saisfactorily in some cases. Whatever procedure is followed, a thorough scouring of the goods to remove the oil used for lubricating the yarn before knitting is necessary. Complete removal of this oil is essential if level dyeings are to be obtained and also if the danger of grease spots showing up in the finished stock is to be avoided.

For scouring and dyeing, soft water is most desirable. Given a supply of pure, soft water, the hosiery dyer will have little difficulty in working out a satisfactory scouring formula. Unfortunately, however, soft water is not available in every mill. If only hard water can be had, and the mill has no softener, the dyer must treat it as best he can and then adjust his formulas accordingly. Among the expedients to which the dyer can resort are boiling of the water to remove temporary hardness; treatment of the water with trisodium phosphate, sodium hexametaphosphate, etc.; and use of scouring compounds which are not affected by hard water.

Two-Bath Method

When dyeing is carried out by the two-bath method, the first step is to bag the hosiery (the writer prefers cheesecloth bags) and load it into the machine. Water is now run in to the proper height and brought to the boil. The soap or other scouring compound is now entered, and enough trisodium phosphate or other alkali is added to make the bath slightly alkaline. (Some scouring compounds are available which contain free alkali; if one of these is used, the addition of straight alkali to the bath is unnecessary.)

If the rayon has been lubricated with mineral oil, addition of a solvent or use of a scouring agent with which is incorporated a solvent, is advantageous. After the machine has been started, scouring is continued at the boil for 15 to 20 min. Water is now turned on to flush off any insoluble foreign matter which may be floating on top of the bath, and the liquor is then dropped.

Before the dyestuff is entered, the goods should be well rinsed, fresh water run in, and the temperature again raised to the boil. The dyeing assistant and dyestuff are now put in the machine, and the goods run at the boil for 15 to 20 min. At this time glauber salt is added to complete exhaustion of the bath, dyeing is continued for another 20 min., and a sample is taken for matching to shade. When the desired shade is obtained, water is entered to flush the machine, and finally the goods are rinsed well and removed.

The split-bath method of dyeing dull-luster rayon hosiery is gaining popularity, and the present writer finds that it gives excellent results. This method is less expensive than the two-bath method and requires less time for its completion. The operation is started in the same manner as described above. That is, the bagged hosiery is placed in the machine and run for 10 min. at the boil in the scouring solution. Next the machine flushed over, and enough of the scouring liquor is run out to bring the level to about 8 to 10 in. from the top of the machine. The dyeing assistant and dyestuff are added, and dyeing is continued as described for the two-bath method.

The one-bath process takes the shortest time and is the least expensive of the three. It is the most difficult to control, however, and should be attempted only under favorable conditions. If a supply of soft, pure water is available, and if level-dyeing colors and a suitable scouring agent are employed, it will, as a rule, give satisfactory results. In the one-bath method, the stockings are placed in the machine, water is drawn in and brought to a boil, the scouring compound and dyeing assistant are added, and the machine is run for 2 to 3 min. to wet out the goods. The dyestuff is now added, and dyeing is carried out in the usual way.

The stockings are extracted after drying, and then should be boarded within 48 hr. from the time they are dyed. If the hosiery is permitted to remain without being boarded for a longer period, there is danger that mildew will form and also that the goods on the top of the lot will dry out and thus necessitate reboarding.

Selection of Dyestuffs

Dyestuffs employed on dull-luster rayon hosiery should be level dyeing and, at the same time, should give the same shade on the rayon as on the mercerized cotton heel and toe of the stocking. Also, of course, they should be of suitable fastness to washing, perspiration, and light. By dyeing three or four sample stockings, keeping one for reference purposes and subjecting the rest to fastness tests, the dyer can determine the suitability of a given dyestuff. It is not necessary to build up a wide range of colors—a reddish brown, a yellow, a black, and a red being all that are necessary for most of the shades which are in greatest demand. A stock of these dyestuffs, together with a few pounds of each of three or four other colors for shading purposes, will enable one to produce practically any shade which is now being called for on dull-luster rayon hosiery.

Chemical Conditioning

FOUND SUPERIOR TO ATMOSPHERIC IN RECENT TESTS ON COTTON FILLING

By Robert L. Evans

IN ORDER to make a comparison of atmospherically conditioned filling with chemically conditioned filling, a New England cotton mill recently made a test on about 4800 bobbins. The comparison was based on the moisture regain throughout the bobbins. The test procedure and the results are as follows:

The procedure was to take 24 boxes, each holding about 200 bobbins as doffed off the frames, and divide them into two lots of 12 boxes each. One set of 12 boxes was immediately passed through a machine which sprayed on the chemical and water mixture. These 12 boxes and the other 12 untreated boxes were then placed in a room side by side, where the humidity was kept constantly between 90 and 95%. The boxes were left here for 24 hr., which was the normal time in every-day practice. The boxes were then moved into the weave room and placed near the looms on which the bobbins were to be used.

Yarn samples were taken as follows: (1) directly after spinning; (2) at the end of 24 hr. in the conditioning room; (3) three days after the second test; (4) two days after the third test, and (5) two days after the fourth test.

Samples taken from yarn conditioned by both methods were employed in each test; also, bobbins from the top of boxes were tested separately from those on the bottom of boxes. In order to measure penetration, yarn was cut from bobbins in such a way that the outside layers, middle layers, and inner layers were kept separate.

The data obtained are given in the accompanying table.

From these results the following conclusions were drawn: (1) Chemical conditioning gives much more uniform and lasting results. (2) Bobbins on the bottom of boxes where moisture was put in chemically showed up best of all. They retained moisture longer under weave-room conditions than did bobbins on top of boxes. This, no doubt, was due to their protected position. (3) Bobbins on the bottom of boxes atmospherically treated were really underconditioned, as shown by fact they kept taking on moisture in weave room, whereas bobbins on top of these same boxes, as well as the chemically conditioned filling, constantly gave up moisture as time went on.

Percentage of regain in conditioned filling

	Position of bobbins in boxes	Location of layers of yarn	Test directly after spinning	Test 24 hr. after 1st	Test 3 days after 2nd	Test 2 days after 3rd	Test 2 days after 4th
Bobbins Atmospherically Conditioned	Bobbins from top of boxes	Outside	5.80	9.06	8.40	8.73	8.47
		Middle	5.73	9.61	8.39	8.87	8.32
		Inside	5.90	9.36	8.38	8.84	8.25
	Bobbins from bottom of boxes	Outside	6.13	6.92	7.84	8.14	7.63
		Middle	6.10	6.92	7.68	7.80	7.65
		Inside	6.05	6.58	7.74	7.73	7.75
Bobbins Chemically Conditioned	Bobbins from top of boxes	Outside	6.28	11.33	9.26	9.77	10.31
		Middle	6.47	10.22	9.33	9.21	9.79
		Inside	6.19	10.13	9.92	9.32	9.70
	Bobbins from bottom of boxes	Outside	5.99	13.28	10.73	10.92	9.17
		Middle	5.93	12.14	10.92	10.26	9.80
		Inside	5.99	11.96	11.60	10.19	9.87

Fly-Frame Tension...

ADVICE FROM A GASTONIA CARDER

By J. S. B.

THE first step to take to secure uniform tension on any make of fly frame is to see that the humidity is right for the conditions under which the department is operating and that this humidity is being faithfully maintained by the controls. A relative humidity of around 50 to 55% is usually desirable.

How to Start Check-up

Having assured yourself on this point, proceed with a general check-up of the frame. See that the top cone is in line with the bottom cone. This is best done with a plumb bob after the cones are supposedly lined up.

Set the cone belt rack back to within about $\frac{1}{4}$ to $\frac{1}{2}$ in. of the small end of the bottom cone. Then start up the frame, running about 1 to $1\frac{1}{2}$ in. on the empty bobbin to see whether you have the correct coils per inch. If not, make the necessary correction.

Next see that you have the right cone gears on the bottom cone to give the correct tension on the ends. Thus far the cone belt has not made its first change. Now start the frame up and run it for a few changes. By this time you can determine whether the ends are running too slack or too tight. If too tight, put on a tension gear which is one or two teeth larger. If too loose, put on a gear one or two teeth smaller. Selecting the proper gear requires close attention, but once it is done you will have an even tension throughout the doff and all the time and trouble you have gone to will be rewarded.

Fig. 1. Record of tests of individual applicant

Name *Miller Herman* Sex *Male* Date of test *4-16-34*
Rating- Total points *102* Job wanted *Weaver*
Remarks *Qualified (average)* Date of Birth *1-26-16*

Group I- Senses — Points

Hearing: Distance *Normal* Near *Normal*		1
Sight: Distance *Good* Near *Good*		2
Color blindness: principal colors *Good*		2
" " nuances *Medium*		1
Total		6 x 3 = 18

Group II- Strength and Build

Appearance *Medium height and weight*	1
Strength *Good*	2
Total	3 x 2 = 6

Group III- Agility and Adaptability

Speed of simple manual action	*quick*	3
Control of movement of both hands	*Good*	2
Nimbleness of fingers	*Bad*	0
Aptitude for learning	*Medium*	1
Steadiness of right hand	*Medium*	1
Ability to draw	*Very bad*	0
Mobility of wrist	*Good*	2
Total		9 x 4 = 36

Group IV- Practical Intelligence

Ability to distinguish shapes of objects	*Not sure*	0
Thinking capacity	*Medium*	1
Mechanical knowledge	*Very bad*	0
Ability for visual recognition	*Good*	2
Ability to absorb verbal orders	*Medium*	1
Ability to think logically	*Medium*	1
Perseverance and capacity for tedious work	*Medium*	1
Total		6 x 5 = 30

Group V- Broad Intelligence, Education, Culture

Mental agility	*Good*	2
Mathematical ability	*Good*	2
Ability to work with figures and names	*Medium*	1
Ability to think logically and express thoughts	*Bad*	0
Mentality	*Medium*	1
Character	*Good*	2
Reading habits	*Medium*	1
Understanding of industrial organization	*Bad*	0
Total		9 x 1 = 9

Group VI- Discernment

Conscious	*Slight*	1
Sub-conscious	*Bad*	0
Total		1 x 3 = 3
Total Points		102
Hands *Do not perspire*		

Selecting the Applicant FOR SILK- OR RAYON-MILL WORK BY RESULTS OF APTITUDE TESTS

By Otto W. Bitzenhofer

THIRTY simple tests for judging the qualifications of applicants for mill work were described in the August issue. These tests were divided into six groups as follows: (1) the senses; (2) strength and build of body; (3) agility and adaptability; (4) practical intelligence; (5) broad intelligence, education, and culture; and (6) discernment. Interpretation and correlation of results of individual tests are here discussed.

The point system is employed for rating the applicant's aptitude for a given job. Thus it will be seen from Table I that 18 is the highest number of points which can be obtained normally from the tests in Group I. It will be noted also from the table that each group of tests is rated according to its group importance; that is, Group I has a rating of 3 as compared with a total of 18. Any male applicant who receives a total of less than 55 points and any female applicant who receives less than 50 points is not suitable; male applicants who receive from 55 to 83 points and female applicants who receive from 50 to 74 points are just qualified; males who receive 84 to 105 points and females who receive 75 to 90 points are qualified as average workers; males who receive 106 to 130 points and females who receive 91 to 110 points are well qualified, males who receive 131 to 150 points and females who receive 111 to 125 points are highly qualified, and males who receive 151 to 170 points and females who receive from 126 to 137 points are very highly qualified.

In Fig. 1 is shown the form on which is recorded the results of tests of individual applicants. It will be seen from this form that the method for determining the rating of the applicant is to multiply the number of points received by the applicant in each group of tests by the figure for the group importance of that group. The sum of these products is the total number of points received by the applicant. In this particular test the applicant received a total of 102 points, which qualifies him as an average worker. The number of points allowed in each group of tests for ability is shown in Table II.

The age of the average worker determines to a con-

TABLE I. Point system for rating ability of applicant.

	Highest Normal Performance		Lowest Normal Performance		Lowest Allowable Performance		Group Importance	
	Males	Females	Males	Females	Males	Females	Males	Females
Group I (The Senses)	18	18	10	10	4	4	3	3
Group II (Strength and Build)	9	9	4	4	2	2	2	2
Group III (Agility and Adaptability)	53	60	24	30	18	21	4	5
Group IV (Practical Intelligence)	78	33	35	20	24	16	5	4
Group V (Broad Intelligence, Education, Culture)	14	14	8	8	5	5	1	1
Group VI (Discernment)	6	6	3	3	2	2	3	3
Totals	178	140	84	75	55	50	18	18

TABLE II. Points allowed in each group of tests for various degrees of ability.

Group I	Very Good 3	Good 2	Normal 1	Bad 0
Group II	Very Well-built, Very Strong 2	Well-built, Strong 2	Medium 1	Poorly Built, Weak 0
Group III	Very Quick, Quick 3	Good 2	Sure, Medium, Slow 1	Bad, Very Slow 0
Group IV	Very Good 2	Sure, Good 2	Medium, Normal 1	Bad 0
Group V	Very Good 2	Good 2	Medium, Normal 1	Bad 0

TABLE III. Influence of age on ability of worker.

Group	I	II	III	IV	V	VI	Total
Age 55 yr	18	16	60	140	23	3	260
Age 49 yr	20	18	66	155	25	4	288
Age 42 yr	25	20	70	170	26	5	316
Age 35 yr	28	22	80	150	27	7	314
Age 28 yr	25	24	72	125	26	8	280
Age 21 yr	20	17	64	90	19	6	216
Age 15½ yr	12	6	36	50	10	4	118

TABLE IV. Most important tests for applicants for work in various departments of the mill.

Group	Office	Packing Room	Winding, Warping, Spooling	Weaving	Technical Departments	Dyeing	Mechanical Departments
I	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
II	.....	1, 2,	2	2	2	2	2
III	5, 6	1, 4, 7	1 to 7	1 to 5, 7	1, 2, 4, 6	1, 4, 7	1 to 4, 6
IV	1 to 6	1, 2, 5, 6	1, 2, 4 to 7	1 to 7	1 to 4, 6	1, 2, 5, 7	1 to 6
V	1, 2, 3, 8	2, 3	1, 2, 3, 5 to 8	1 to 8	1, 2, 3, 7, 8	1, 2, 3	1, 2, 8
VI	1	.....	1	1	1	1	1

siderable extent his ability and aptitude. This is shown in Table III, where the results are given of tests on applicants of various ages. The figures in this table are not strictly comparable with those given in Table I, as a different system of rating was employed. They serve to show, however, the relative ability of workers of various ages.

It is true, of course, that some types of work require a different type of aptitude than do others. For example, some jobs call for more physical strength than do other jobs. Again, some workers like to keep the same job for a long time; others want to change from time to time. These factors must be kept in mind in interpreting the results of the tests. Therefore, Table IV has been prepared to show the individual tests in each group (TEXTILE WORLD, August, 1934, pp. 60 and 61) which are most important in judging applicants for work in various departments of the mill.

These tests—if properly carried out, correlated, and interpreted—will serve as a basis for judging the fitness of the applicant. There are, however, other factors, such as the applicant's ability to get along with other operatives, which cannot be determined so readily. Therefore after workers have been employed by the mill for a period of three to six months, the results of the test should be checked with their actual records.

By G. L. Atkinson

Double-Decatizing

IS ADVANTAGEOUS IN FINISHING LIGHT-WEIGHT MEN'S-WEAR WORSTEDS

IN PROCESSING high-grade, light-weight worsteds for men's wear, the primary object is to obtain a silky finish and a soft, full handle. Since these fabrics are usually warp dyed and often carry definite designs, it is essential, also, that the design be bold and clear, and the colors bright. These objects can be obtained—and crimps, running marks, and harshness (the most common defects in this type of material) avoided—only by careful attention to the preparing and finishing operations.

In describing the routine which he has found suitable for finishing suitings of this character, the writer wishes to emphasize first that the fabric requires very little setting. As a rule, goods which are to have a finished width of 54 in. will measure 56½ or, at the most, 57 in. in the gray. As a shrinkage of only 1 to 1½ in. is all that is required, crabbing is unnecessary. In fact, if it is attempted, a thin, papery finish is almost certain to result. On the other hand, to prevent running marks and crimps, use a light setting on the decatizing or blowing machine.

When the goods are received in the gray room, they should be measured for width and perched. At this time any bad stains which might be set by the decatizing operation should be removed. One piece should then be decatized in order to determine the amount of shrinkage which takes place. If the difference between the gray and finished widths is small, and the shrinkage is excessive, it may be advisable to omit the decatizing operation. In those instances where it is possible to decatize, the goods should be run on the machine under medium tension, steamed, and run off at steam heat. Many finishers cool the goods as an additional precaution against crimps or creases and also to assist in obtaining the desired finish. The writer does not favor this practice, as he believes it tends to give a stiff handle.

Correct scouring is highly important. The scour must be thorough to insure a clean-smelling finished fabric and, at the same time, should be carried out at as low a temperature as possible. In constructions where a colored design is predominant, a cold scour may give the best results. The scouring machine should be in good condition and, particularly, the rollers should be true. During the scouring operation the pieces should be well drafted out to prevent the formation of running marks and crimps. For the same reason, cooling should not be too drastic. If these precautions are taken, the following procedure will be satisfactory: Wet out goods and run dry, 10 min.; scour with soap and soda ash, 15 min.; rinse and run dry, 10 min.; scour with soap and ammonia, 10 min.; rinse with warm water, 30 to 50 min.; rinse with cold water, 15 min.

After scouring, the goods are extracted and dried. There are several points to be considered in drying. In the first place, over-drying or baking of the goods must be avoided; otherwise a harsh handle will result. Next, torn selvages must be guarded against; while the fabric should be pulled out in width as much as is safe, due to the shrinkage of the material in earlier operations, it usually is impossible to dry to a greater width than 55 to 55½ in. Lengthwise tension should be at a minimum.

Shearing presents few difficulties. To obtain the clean face required and have a little cover on the back, the goods are given three runs on the back and two cuts on the face on a spring-bed machine, followed by a final run on the face on a solid-bed machine. In this operation, as in drying, lengthwise tension should be kept as low as possible. Perching is now advisable, but if the preceding operations have been carried out properly, the percentage of rejections should be small.

The goods, after perching, are damped lightly—not to increase the weight, but merely to assist in obtaining the desired appearance and handle. Damping must be even if a uniform finish is to be obtained. Next the fabric is decatized under as little tension as possible. After this second decatizing, the goods again should be run off at steam heat. Finally the goods are pressed, given a light steaming to remove the glaze from the face, folded with the face inside, and allowed to stand overnight under moderate pressure.

Consider the Diesel!

RECENT APPLICATIONS OF NEWCOMER TO TEXTILE FIELD

By Oliver Field Allen
Consulting Engineer, New York

IT IS only within the last few years that textile mills have seriously considered the use of oil engines. That their use is now growing is due largely to the fact that the diesel type of oil engine is now built in this country by several manufacturers in a variety of ratings up to single units of more than 5,000 hp. and of such high quality as to insure smoothness and steadiness of power supply, as well as reliability.

Much of the heat formerly wasted in exhaust and cooling water can now be saved and made to provide considerable steam and/or hot water for various process requirements, for heating and air conditioning, for sanitary services, etc. The resulting high thermal efficiency, of the order of 60 to 70%, and the low operating costs make the diesel engine plant well worth investigation.

The author knows of about fifteen modern oil-engine-driven textile plants. There are probably many more. The three installations described below have been selected as typical of what diesels are actually doing in the textile industry.

It should be noted that there is no single yardstick by which to measure the relative value of various sources of power for textile plants. Each mill must be studied by itself. The relative costs of coal, oil, and central-station service; the steam required for processing, heating, etc.; the space and water available; and the adequacy of the present power supply are only a few of the items to be considered. Much help may be had, of course, from the engine manufacturers, but the final selection of the kind of power, and the type, rating, etc., of the engine should be based on an impartial balancing of all aspects of the problem and of all data available.

Stehlisilks Corp., started using oil-engine power several years ago, with one 180-hp. engine in its Harrison, Va., silk throwing plant. Next a 400-hp. diesel was installed, and now a 300-hp. diesel has replaced the original, less-efficient semi-diesel. Fuel is purchased in carload lots and is hauled three-quarters of a mile from the railroad siding in a tank truck. Jacket water is cooled in a spray pond. Both engines are direct connected to a.-c. generators. Motor-generator sets supply the required direct current. During the last year the 700-hp. plant operated 5,982 hr. and produced 2,292,000 kw.-hr., using 183,251 gal. of fuel oil. This is 12½ kw.-hr. per gallon of fuel; 1,375 kw.-hr. was produced per gallon of lubricating oil. Before the oil engines were installed all power was bought from a hydro-electric station, and some current is still purchased to augment that generated in the mill's own diesel plant.

Jewell Cotton Mills, Inc., Thomasville, N. C., replaced central-station service with the De La Vergne, 940-b.hp. diesel shown in the accompanying illustration. This engine drives an a.-c. generator and supplies power for the entire mill, including the preparatory machinery, 12,480 spinning spindles and 7,000 twister spindles. The engine fulfills all fire-protection requirements. Beginning with the engine at rest and cold, the unit can be started, the generator brought up to full voltage, and the fire pump made ready in 1 min. 18 sec. The secretary of the company states that the cost is 0.6c. per kw.-hr. Also he states that previously the mill spent about $2,500 a year for rewinding motors due to storm damage and other causes resulting from purchased outside power, but has spent nothing because of these causes since the oil engine has been installed. He reports that the diesel engine gives the uniform, even power so essential to quality work and that there has been no loss in production time due to the engine.

William E. Hooper & Sons Co., Baltimore, Md., manufacturer of cotton duck and kindred products, decided three years ago to use diesels. The total connected load was about 1,900 kw., but with the reduced production of 1932 it was not necessary to provide for more than a part of the maximum. Engines rated at 1,000 b.hp., direct connected to a.-c. generators were selected. The first one was installed at the beginning of 1933. After several months of operation, during which a saving was effected of over $4,000 net each month, a second unit of the same kind and rating was purchased and put in service in July, 1933. As soon as sales justify mill operation at full capacity, a third unit will be added.

This plant is especially interesting in showing how local conditions can be taken advantage of and waste heat utilized. Water from an old, abandoned mill race feeds the engine cooling system. A waste-heat boiler for the exhaust line of each diesel engine has been put in the old boiler room. These are plain, vertical cylindrical, fire-tube boilers, arranged for excellent heat transfer from exhaust gases to water and steam. Feed water for these boilers comes from the engine cylinder jackets at about 120° F. There is an excess, some of which is used for other purposes. The exhaust gases leave the engines at about 700° F. (the engines are the four-stroke-cycle type) through lagged pipes and leave the waste-heat boilers at about 410° F. Steam production is about 1 lb., at 80 lb. gage pressure and 100° F. superheat, per b.hp.-hr. developed by each engine.

From February, 1933, to March, 1934, inclusive, these two engines produced 4,924,100 kw.-hr. The average electricity generated per gallon of fuel oil was 13⅓ kw.-hr. During the first four months of that time fuel oil cost $0.03665 per gallon; subsequently, $0.04165. Lubricating oil varied between $0.447 and $0.5796 per gallon. The plant operated two 8-hr. shifts, totaling about 80 hr. per week. The production cost of current, not including capital charges or reserves for maintenance and amortization was as follows:

Average per kilowatt-hour	Feb.-Dec.	Jan.-Mar.
Fuel oil	$0.002746	$0.003175
Lubricating oil ..	.000255	.000147
Labor	.000858	.000832
Repairs, supplies and insurance.		
Total	$0.004412	$0.004729

During this time the waste-heat boilers produced 5,000,000 lb. of steam, credit for which would materially reduce the above cost figures, as the value of heat recovered from exhaust and jackets is from $2,500 to $3,000 per year. The thermal efficiency of these engines is approximately 73%, made up of about 32½% in power output, about 13% in heat recovery in the boilers from exhaust gases, and about 27½% in heated jacket water.

Seamless Chain Chart

GIVES HOSIERY FIXER COMPLETE INFORMATION

By H. E. Crawford

THE accompanying chart is designed to give the fixer all the general information about the sizes and constructions of different patterns which he needs to know. Some mills which use a chain chart keep it in the superintendent's office or in the knitting-room foreman's pocket and leave the fixer to guess at his work. The best and most efficient way to use the chart idea is to have one chart for the superintendent and one for the knitting room kept where the fixer can see it at any time. The superintendent's chart can be filed away with the cost record which should be made at the same time the pattern and chain chart is made.

At the top of the chart is the name of the mill and the record number. On the second line is the pattern number, date the pattern is made, and who it is made by. The third line is for the style number, type of hosiery (anklet, half hose, or women's), and for whom made.

The columns headed "Links" are for the chain, and each link is recorded as it comes in the chain, beginning at the top of the stocking. The left-hand column is for the number of links of a kind that are used. The columns headed "Left" and "Right" are for the left and right sides of the chain links, and the column headed "Movement" is to describe what the move links do. For example, if the first link has a low center lug on the left side and a high front lug on the right side, it would be marked "0-1-0" in the left column and "4-0-0" in the right column. The operation that this link performs would be written out under the column headed "Movement," as "cut out," "on heel," or "off heel." If six plain links follow, they should be indicated by the figure "6" in the first column and nothing in the left and right columns. "Plain" should be written under "Movement."

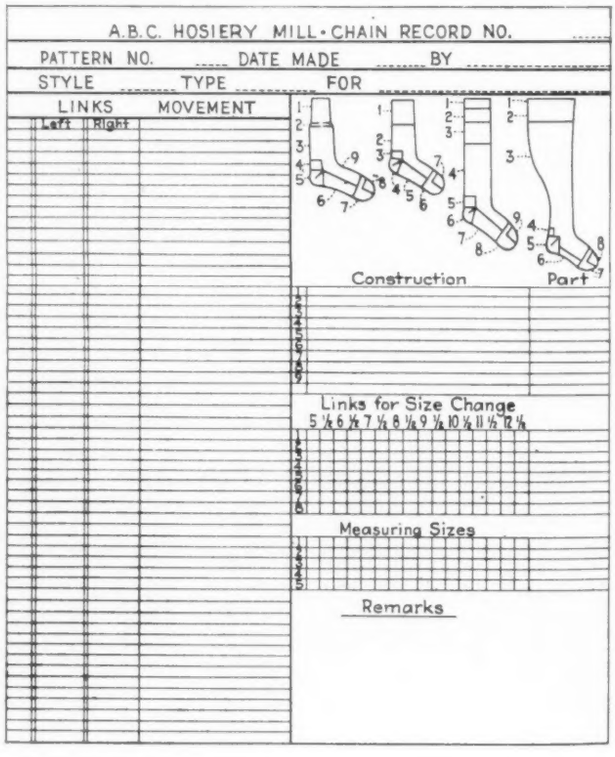
There are four figures on the right of the chart. The first is a half hose and should be referred to in making a chart for half hose. The second is a rib-top anklet and is to be referred to in making a chart for rib-top anklets or ribbed-top golf or children's hose. The third figure is a self-cuff children's stocking and is to be referred to when making a self-cuff anklet, children's or golf stocking. The fourth figure is a women's hose to be referred to for women's or children's full-length hose.

The section headed "Construction" has ten lines with nine of them numbered. The numbers correspond to the numbers on the figures and indicate the construction of the different parts of the stocking. For example, if the chart is made out for a self-cuff anklet, we refer to the third figure. Starting at the top of the stocking, we take part 1, which is the plain fabric that is to be turned under to make the cuff. If this part of the stocking is made with one end of 30s 2-ply white mercerized yarn, on the first line under "Construction" we write, "1/30/2 merc. w."; and in the right-hand column we mark the number of the yarn finger that carries this yarn. If part No. 2, which is the outside of the cuff, is plated with 150-denier rayon over one end of 60s 2-ply mercerized dyed yarn, we mark on the second line "1/150 rayon white 1/60/2 m.d." If two yarn fingers are used, say the first and fifth fingers, we mark in the right-hand column "1-5." This would show that the first yarn finger carries the rayon and the fifth carries the mercerized yarn.

The section headed "Links for Size Change" is to tell how many links are in each part of the stocking for each size. For example, if the leg of a size 10 half hose has 22 links and the foot has 18 links and the ring toe has 2 links, we would mark "2" on the third line under "10," "18" on the sixth line under "10," and "2" on the seventh line under "10." If two links are added in the foot and one in the ring toe to make size "11," we would mark "20" on the sixth line under "11" and "3" on the seventh line under "11." At the right of this section the part of the stocking should be written out.

The section headed "Measuring Sizes" is to show how long each part of the stocking of each size should be when it comes off the machine. For example, if a women's hose size 8 has a 3½-in. hem, this should be marked on the second line under 8; and if the leg or boot of the stocking should measure 27 in. this likewise should be marked on the third line under 8. The part of the stocking should also be written out at the right.

In the lower right-hand corner is space for any remarks or general information which the designer or pattern man may care to give the fixer.


A.B.C. HOSIERY MILL • CHAIN RECORD NO.
PATTERN NO. DATE MADE BY
STYLE TYPE FOR
LINKS MOVEMENT
Left Right
Construction
Part
Links for Size Change
5 5½ 6 6½ 7 7½ 8 8½ 9 9½ 10 10½ 11 11½ 12 12½
Measuring Sizes
Remarks

Power for Two Plants

SUPPLIED BY NEW SET-UP AT CLINTON COTTON MILLS

By Guy Makin

General view of Clinton power house which also supplies current for Lydia Cotton Mills.

With boilers of radical design operating at 400-lb. pressure the recently constructed power plant at Clinton Cotton Mills differs considerably from the usual installation found in southern textile mills. The following description of the unit is abstracted from the September issue of "Power."

CLINTON Cotton Mills, Clinton, S. C., has recently constructed a 500-kw. power plant, which, in addition to supplying power and steam for the Clinton Mills, also supplies power to the Lydia Cotton Mills about three miles away. Some of the many innovations in this plant are boilers operating at 400 lb. and at high superheat, turbines operating condensing with two stages of bleeding, closed feed-water heating and evaporated makeup. The plant is housed in existing buildings which required some modification.

Steam is generated in two boilers at 400 lb. pressure and a temperature of 725° F. Each boiler has a maximum capacity of 40,000 lb. per hr. The boilers are set in battery with their respective drums parallel to one another and with a common back wall between. Individual exit dampers lead to a common breaching connected to a 175-ft. brick stack. Each boiler is direct fired by one ball-type unit pulverizer through a 12-in., circular, forced-draft burner in the end wall of the furnace. A third pulverizer, 0.75 ton capacity, is arranged with a swinging coal pipe to fire either of the boiler units through a V-belt transmission, run at constant speed. Coal-firing rate is controlled by remote adjustment of d.-c. motor-driven rotary feeders.

The two boilers and furnace units are new in design and represent a radical departure from the usual boiler unit. They are of the two-drum, inclined-tube, three-pass type. Furnace gas enters the tube bank at the far end of the furnace, passes through a slag screen, a first bank of 3¼-in. tubes on comparatively wide centers and through a large superheater. The gas then turns into two passes of 2-in. tubes on closer centers. Flow, in general, follows the length of the boiler drums, and the gas leaves the boiler at the top of the opposite end of the tube bank from that at which it enters. The flow arrangement makes possible greater tube surface in a limited space and gives longer gas travel than would have been possible with the usual boiler occupying the same space.

Normal operating loads are carried on a 5,000-kw. turbo-generator which operates condensing with steam bled at 65 lb. for mill process and high pressure heating. A 1,000-kw. machine, also condensing, and bled at 15 lb. for plant use only, carries the light loads applying when the mills are not in full operation. These turbines are impulse type, operating on steam at a pressure of 375 lb. and temperature of 725° F. With the normal day load of 3,700 kw. and operating on 27½-in. vacuum, the steam rate, with no bleeding, is slightly over 10 lb. per kw.-hr.

Bleeders are not automatic, and pressures are maintained by reducing valves. If pressure drops in the 15-lb. line, a reducing valve (in a tie line between the 15-lb. and the 65-lb. lines) admits steam to the lower-pressure line to hold its pressure. If pressure drops in the main 65-lb. line, a reducing valve in a 400-lb. connection from the boiler header admits steam in sufficient quantities to hold the 65-lb. pressure. This method is not only cheaper in first cost than the usual automatic-bleeder pressure control, but is equally satisfactory for mills where the load is quite constant a large part of a day.

Power is generated at 2,400 volts 60 cycles, 3 phase. Generator surface air coolers use circulating water as the cooling medium. In addition to cooling, this closed system avoids the deposit of dirt and dust in the generator and limits fire hazard.

From the plant bus structure, power is transmitted to an outside transformer substation. Here, the voltage for the Clinton Mills, together with that for the plant auxiliaries is stepped down to 575 volts for local distribution. Other transformers in the same substation step up the voltage to 11,800 volts for transmission to the Lydia Mills, where it is stepped down to 575 volts.

Generation and distribution are both controlled from the plant switchboard in the turbine room. A swinging bracket on the side of the board carries a synchroscope and the other necessary instruments for paralleling the generators. The generator panels carry the necessary instruments and controls for both units.

Three panels handle distribution. One, of 200-kw. capacity, controls plant auxiliaries; the next, of 2,000 kw., controls distribution to the Lydia Mills; and the third, of 3,000 kw., handles current for the Clinton Mills. All three carry the necessary instruments.

THIS DEPARTMENT—

offers a new subject for discussion every other month and gives readers' comments on problems introduced in previous issues. It alternates with the "Kinks and Wrinkles" department. The subject opened in July is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented this month under the heading "About Inspecting Machinery," and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

Overseers'

ABOUT INSPECTING

"WELL, I don't seem to have anything particularly vital to pass on to you fellows this morning," said Superintendent Chase as the meeting opened. "Anybody want to get anything off his chest? Suggestions? Complaints?"

Bill looked around at the rest of the group and noted that "Old Man" Johnston, the master mechanic, was absent. As no one else seemed bursting with the desire to talk, he slowly scratched his head and ventured: "Seems to me that it's about time for 'Old Man' Johnston to come around and give the machinery the once-over. I started to send for him a few days ago but figured that his regular inspection is due most any day now, and I hated to rush him. Some of my gears are worn and a few belts are beginning to slip a little. One machine is beginning to rattle like Pete's so-called automobile."

"Say, Superintendent Chase," suddenly queried Pete, when Bill had finished, "why do you continue to let 'Old Man' Johnston inspect all the machinery when you could easily get a scientific engineer from the factory to go over it a couple of times a year? These engineers, you know, are real experts and would probably be glad to run efficiency tests, as well as recommend changes and repairs. It is mighty hard to tell if you are getting the best out of an electric motor, for instance, unless you have all sorts of gages and standards with which to test it. We all know that our master mechanic is a mighty good man, but, after all, he hasn't had the scientific training of these factory men. And then too, as we all know, his

On Prizes for Accident-Prevention Work

Editor, Overseers' Round-Table:

I think that it is a very good idea to offer a prize for accident prevention, but, instead of giving the prize to the overseer, I would give it to the workers in the winning department. Let the workers see that it is something for them, instead of the old cry: "I want you to do this and I want you to do that."

The prize money should be given to the sports committee of the mill, to be used in buying other prizes which could be competed for by the winning department at the annual outing. In this way you would have the combined effort of every person in the mill, rather than merely the overseers.

FAIRPLAY.

Editor, Overseers' Round-Table:

It is agreed by many industrial safety engineers that safety cannot be sold to the worker unless the foreman is abundantly sold on safety. Many companies have made the foreman directly responsible for accidents occurring in his department and are charging all the costs involved in an accident directly to his department.

Therefore, having made the foreman responsible for the safety of his workers, it is reasonable to expect that he should be rewarded when his efforts in accident prevention work have proven successful.

If prize money is allotted for the foreman showing the best accident record I would suggest consideration of the following program in making the award:

1. Organize the program into a departmental contest running over a period of six months.

2. Compare the accident record for that period with the accident experience of the preceding two years for that department. The comparison would be based on the number of man-hours worked.

3. Give consideration to the number of safety recommendations made to each foreman as compared to the number carried out by each foreman.

4. Consider the cooperation given by each foreman to the safety organization.

5. Consider the methods used by each foreman to put the contest over in his department.

With these factors in mind, it should not be difficult for a committee to choose correctly the contest winner. A foreman who has his workers sold on safety and can show an improved accident record deserves recognition—and financial recognition in these days is most effective.

WALLACE GILL, JR.

Editor, Overseers' Round-Table:

If an accident prevention drive can in one year prevent a single accident, it will be well worth the expense and trouble. For accidents do not cost only in time and in money, they cost in weakened morale and in poor work due to the shock caused by injury to a fellow-workman.

Thus, the first loss comes from the time spent whenever an accident occurs, the second is concerned with expenses and damages incidental to the injury, and the third is the likelihood of further accidents with the certainty of poor quality work for an appreciable length of time.

Is $25 too much to pay to an overseer who manages to keep his department running with fewer accidents than any other? As has been suggested, the prize should be given to the department which shows the most improvement over an average showing taken before the accident prevention drive.

If every mill in the country keeps before its workers constantly the danger in their work, danger which exists only if they are careless, the number and extent of accidents can be cut down appreciably. Every

Round-Table

MACHINERY

pride in his work is such that he thinks the mill shop is equipped to fix anything that goes wrong—no matter how serious!"

"Since the subject has been brought up," said Superintendent Chase, "we might as well hear what every one has to say. What's your idea, Joe?"

"I, personally, dont see why any outsider should inspect our machines," answered Joe. "I've studied every one of them from top to bottom and can tell by the sound the very instant something goes wrong. No matter what kind of scientific training a man has had, he can't come as near telling what's wrong with a machine as the man who has been operating and caring for it year in and year out. It stands to reason that a man can learn a lot more about one or two machines than he can about every machine in the mill. If you ask me, I'd say let the overseer inspect his own machinery, when he thinks it necessary, and then make recommendations to the mill shop. I don't want Pete's scientific engineers cluttering up my department all the time!"

By whom and how often should machinery be inspected?

SUMMARY

PRIZES FOR ACCIDENT PREVENTION. *Approximately 85% of the letters received voted in favor of establishing prizes for accident prevention, although about one third of the number believed that the operatives and not the overseers should be the ones to benefit. The point most frequently brought out was that safety drives have proven their effectiveness and that a bonus plan would supply the necessary incentive. The comparatively few votes cast against the bonus plan argued that you didn't need to give a good overseer a bonus to make him look out for the welfare of his operatives and that the money might better be spent in educating the latter on accident prevention.*

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campaign for better driving in metropolitan districts, safety first for children, instruction for workers in dangerous trades—every one of these can show real results. In those mills where the scheme has been tried, accidents were cut down. Why, then, cannot all the others see their way clear to offer a small prize coupled with a real campaign for fewer accidents? M. T.

Editor, Overseers' Round-Table:

Industrial accidents are either preventable or unpreventable. Those in the first group are due to the failure of the man in charge to provide proper working conditions and guards upon the machines. The second classification can be blamed upon the workman because of ignorance and carelessness.

I believe that the bonus system for the overseer is a good idea. The element of education in accident prevention is one which cannot be fostered by compulsion, or by legislation, and must be the result of a well-organized effort and the establishment of a fine company spirit throughout the plant.

A bonus system for the overseer will create in him a desire to beat the other fellow. Even a responsible foreman will, at times, be careless in selecting the proper and safe method of supervising work, but none of us would like to be at the tail end, so the bonus system will set everyone concerned to thinking about how he will beat the other fellow. A. B. BROWN.

Editor, Overseers' Round-Table:

Anent the discussion of method of reducing accidents by awarding a yearly prize, it seems to me this would be emphasizing one phase of a department's efficiency without regard to other equally important ones.

I believe I would be inclined to view the efficiency of the department as a whole and would set up a suggestion system with various size awards as an incentive for improved efficiencies and elimination of accidents. Accidents are usually due to faulty and careless housekeeping and lax maintenance methods, which cease to exist if under the constant inspection of all employees with incentives for their elimination.

A good suggestion system aided and encouraged by management with suitable awards will do wonders in reducing accidents, improving general efficiency and toning up the plant in general.

J. M. MURPHY
Walter Goldsmith Co.

Editor, Overseers' Round-Table:

I will choose the negative in the discussion of accident prevention, but I must say that my attitude is not due to the heat nor to my being of a pessimistic nature.

As we know, accidents cost huge losses in life and property; discounting the suffering and agony. Therefore remedies should be sought.

I do not know what others think, but, as for myself, there is too much emphasis placed on the word "bonus." Give a person a decent salary and forget about any bonus. It doesn't take an incentive to get an employee interested in self-preservation and any money spent on a bonus plan might better be spent in educating operatives on means of preventing accidents.

An overseer receives a salary which should warrant his attention and enthusiasm. The "Laws of Leadership" specify that an overseer should take an interest in the affairs of his employees. Bonus or no bonus, this is his duty as a successful overseer and he should be compensated accordingly.

An overseer should know the traps and pitfalls of his department and should guard his operatives against same. Whenever you admonish an operative regarding his likelihood of being injured, he will take it as a personal favor. INCOGNITO.

QUESTIONS AND ANSWERS

Stretch in Sizing Rayon Warps

Technical Editor:

We shall appreciate your views in regard to what you consider excessive stretch at the slashers in rayon of 100 or 150 denier. We have been told that there should not be a stretch greater than 2% at the slasher. We have never been able to obtain this; the very lowest we have obtained is between 3½ to 4%.

If a 100-denier, 40-filament, dull-luster rayon warp, when slashed, shows a gain of 4% at the slasher, and is woven into an all-rayon taffeta with 92 sley, 69 picks, 39½ in. in the reed, should this cloth show a gain of 8 to 10%, including the gain at the slashers? If not, what is considered the standard gain for a cloth of this nature when taken from the loom? (8133)

It is our opinion that stretching of 3½ to 4% is not excessive and you should get good results in weaving with this warp. It is unnecessary, in our opinion, to attempt to get the stretch down to 2% at the slasher. It is generally considered that anything above 6% stretch is excessive for 100-denier rayon and anything above 7% is excessive for 150-denier rayon. Unless you are running into some difficulty, it appears to us that it is unnecessary for you to make any changes in your sizing procedure.

In weaving, there should be no further stretch, but rather a shrinkage; that is, on the type of fabric mentioned in your inquiry there is a take-up of approximately 3% in the loom. In other words, a sized warp, 100 yd. long, would give about 97 yd. of woven fabric as it comes off the loom. In finishing, however, the fabric would again stretch.

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Stiffening Glove Cuffs

Technical Editor:

We inclose herewith a glove made from mercerized cotton. We shall appreciate information as to the proper way of stiffening the cuff. After treating, the cuff and hand should be the same shade. This glove is made in colors as well as white.

We have tried a solution of shellac and alcohol on the colors, with fair success, but we cannot use it on white, as this solution discolors white. We have tried wall-paper paste and also starch on white gloves, but these treatments are not good on colored gloves. The solutions mentioned above are very messy to apply and take considerable time, as the cuffs have to be dipped and then wrung out by hand before the gloves are pulled on to laying-off forms. They also make the hot laying-off forms gummy, which complicates the problem. (8152)

As we understand this inquiry, you wish to stiffen the cuff portion and not stiffen the hand portion. Consequently, it will be necessary to immerse the cuff portion only in the sizing solution and then wring out by hand or run through a wringer to remove the excess size. The wringer will probably be more satsfactory.

If the wringer rolls are wiped off each time and the hand portion run through first, the excess size will be squeezed back into the cuff and will be removed from the back edge of the cuff. In this manner, boarding or drawing over the forms will be facilitated and the cuff portion will not be wrinkled to any great extent.

A suitable sizing solution can be prepared from a mixture of textile gums. These gums are sold under various proprietary names and can be obtained from the manufacturers mentioned on the inclosed list. The mixture is stirred into cold water, a small quantity being added at a time and allowed to thicken and swell. It is not necessary to heat this solution, although heating will somewhat hasten or facilitate the thickening and swelling of the gum after it has been wet out with the water. However, the gum must not be added to hot water, because it will lump and ball up similar to a mixture of flour and water. A solution containing between 5 and 10% of gum by weight should give the desired stiffness.

The cuff portion of the glove is dipped into the solution and the glove run through a wringer, onto a wooden form, and allowed to air-dry on the form. If the glove is dried on a hot form, drying will be more rapid and the glove somewhat stiffer.

The gum mixture should be white and make a very light-colored, almost transparent solution. It should not give any appreciable difference in shade between the cuff portion and the hand portion. The degree of stiffness can be regulated by increasing or decreasing the strength of the gum solution. Any excess gum that gets on the forms will dry to a hard, thin, flaky crust which will readily brush or scrape off the forms.

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Knit-Outerwear Design

Technical Editor:

I read, with much interest, Mr. Miner's views in the September issue regarding my criticism of his article on herringbone design. The chief object of my criticism was to point out that a herringbone design, whatever the width of design, is a straight-line vertical design and has absolutely no more dependence upon lap or design field than a vertical stripe would have. The point of difference between a vertical stripe and a herringbone is that a stripe might be made on two feeds, or any multiple of two feeds, with a wheel or presser to each pair of feeds that might lap one, two, three, or four divisions or divide evenly into the number of needles in the cylinder.

As Mr. Miner's article dealt with a sixteen-feed machine using eight pattern wheels, I cited the possibility of using the wheels mentioned (eight wheels in all) or of using eight wheels of any one of these sizes as a full set, as evidence that the extent of lap has no importance whatever. The thought never entered my mind that anyone might construe the statement as suggesting the advisability of using five different sizes of wheels, nor did the possibility occur to me that someone might construe it as suggesting a lesser number of feeds. If a novice knew enough of pattern knitting to alternate a plain feed with his wheel feed, he should know enough to put wheels with 72 cuts, or wheels whose cuts would equal a multiple of 24, on at least seven of the remaining fourteen feeds. The same thought applies to the mentioned impossibilities of other combinations of four or six feeds.

I quite agree with Mr. Miner that the greater the number of feeds, the greater the production; and I would very much regret having anyone consider the idea that I was suggesting the advisability of reducing the number of feeds below that mentioned in the discussion. I would be more likely to suggest an increase in the number of feeds, say to 24, or even to 32. In addition, I am quite at a loss to determine where the possibility of a suggestion that the design be changed in size could have crept in, unless it be so surmised by one who read into my criticism a suggestion that the number of feeds be reduced. If the design were changed in size, it would no longer be the same design.

I did suggest possibilities in a rather hybrid agglomeration of wheels (I submit to the soft impeachment called for), but it was a combination of eight wheels, not groups of one or of two or of three to be used as groups. The idea of calling attention to the fact that such a combination would reproduce the design illustrated was merely to call attention to the fact that any wheel that would fit on the machine, and that could be divided by 24, could be used in the set of eight wheels required to reproduce the design. There certainly was no suggestion that such wheels should be made for the purpose. All of which was intended to emphasize the fact that in the knitting of a herringbone pattern there is absolutely no requirement that the number of cuts in the wheels divide into the number of needles in the cylinder with *exactly* one pattern division over or under as a remainder.

However, for the purpose of such a pattern there is one requirement that is demanded and that must be met—which is that the number of needles in the cylinder, the number of cuts in the wheels, and the remainder that results from a division of cylinder by wheel (if any) must all divide evenly by the number of needles in the width of the pattern or design.

As to drafting a pattern or the design under discussion into a field calculated from the combination of wheels mentioned, I would be very glad to illustrate the layout. There would be no difference whatever between such a layout and the layout which was illustrated in the article under discussion. As proof of the foregoing statement, I suggest that Mr. Miner send me a design field of the number of wales and number of courses that would be suitable for eight wheels of 120-cut for use in producing a design 24 needles wide, alternating with eight plain feeds surrounded by a heavy border of any color, so that I cannot get out of bounds, and see what results I get as a layout for eight wheels of five different sizes. Naturally, the design and layout of wheels must, in such a case, be for a herringbone or other straight-line vertical design.

One point upon which I seek especial

QUESTIONS AND ANSWERS

enlightenment is in just what respect there is any vital difference in the fundamental methods of calculation for designs as between loop-wheel, spring-needle machines and latch-needle, sinkertop machines. It is true that the latch-needle machine will accommodate a greater number of feeds for a given size of cylinder, but the formulas involved are the same for both.

Design field or pattern field equals the number of divisions in one wheel or cut presser multiplied by one-half the number of feeds on the machine. This, however, is true only in cases where two feeds entirely clear the needles and applies equally to alternate, plain, and pattern feeds and to cases where wheels or cut pressers are used on all feeds. In cases where more than two feeds are required to clear the course, a different calculation is encountered.

J. FREDERICK CAHILL.

▼

Organic Solvents

Technical Editor:

In the June issue of TEXTILE WORLD appears an article describing the properties and uses of 50 organic solvents used in textile work. The information given includes notations in some cases as to the toxic properties of the individual compounds. Among the compounds listed is carbon tetrachloride, which carries the poisonous designation.

We are writing to point out, in the interests of accuracy, that there are a number of other compounds in this tabulation which do not have a poisonous designation and which are at least equally, and in many cases, more toxic than carbon tetrachloride. For example, benzene or benzol is admittedly much more toxic than carbon tetrachloride. A very exhaustive discussion of the toxicity of benzol may be found in a report of the National Safety Council published by the National Bureau of Casualty and Surety Underwriters, and issued in May, 1926.

Chloroform is also listed in your tabulation without the poisonous designation, although Henderson and Haggard, in their book on "Noxious Gases," published by the Chemical Catalog Co. in 1927, rate chloroform as 2.2 times as toxic as carbon tetrachloride.

Dichlorethylether appears in your tabulation without a poisonous designation, although an article appearing in *Public Health Reports,* Vol. 48, pp. 1389 to 1398, indicates very clearly that it has toxic characteristics.

Ethylene dichloride, likewise, appears without a poisonous designation, but is stated in an article to be found in the *Journal of the American Medical Association,* for April 16, 1932, Vol. 98, p. 1400, to be more toxic than carbon tetrachloride, chloroform, or trichlorethylene.

Furfural is listed without the poisonous designation, although I have seen a statement, the reference to which I am at the moment unable to give you, which gives its toxicity as one-third as great as that of formaldehyde and classes it as a local irritant and a narcotic.

Tetrachlorethylene, appearing in your tabulation, is listed by Henderson and Haggard on page 159 of their book referred to above as 1.6 times as toxic as carbon tetrachloride.

Although you have stated in the text accompanying the tabulation of properties that the lack of poisonous marking on any given compound does not guarantee that that compound is non-toxic, particularly in large amounts, the listing of carbon tetrachloride as poisonous, while these other compounds are given without the poisonous designation, would naturally lead the casual reader to infer that carbon tetrachloride was more toxic than the other materials. Since we are sure that you wish to be as accurate as possible in your statements, we thought it best to bring the facts, stated above, to your attention.

PAUL S. BRALLIER
Secretary, Technical Committee
Carbon Tetrachloride Producers Assoc.

[In the compilation of the data for the article on organic solvents, the "Condensed Chemical Dictionary," published by the Chemical Catalog Co., was utilized as a source of information as to the inflammability and toxicity of the several compounds listed. It was realized that there has been considerable research recently on the toxicity of various organic solvents and that the data readily available might not be complete. As it was impossible to check all the scattered literature on this subject, a qualifying sentence was inserted to the effect that lack of a poisonous marking on any given compound does not guarantee that the compound is non-toxic. When sufficient additional information has been gathered to warrant it, we plan to publish a revised and amplified list of the solvents suitable for textile use. We shall, therefore, welcome from readers of TEXTILE WORLD any further data on this subject.—*Editor.*]

▼

Curl in Knit Goods

Technical Editor:
We enclose herewith a swatch of cotton loop cloth made on a spring-needle machine. You will notice that it curls very badly. This makes it very difficult for the garment manufacturer to use. Can you suggest some simple process such as can be applied in a knitting mill to obviate this defect? (8081)

The curling of plain knitted cloth or fabric made on a single set of needles is characteristic of this type of cloth. We suggest steaming as the proper and simplest method of overcoming this trouble. To get the cloth thoroughly steamed, there are several methods in use. One is to steam the cloth in the roll by having it wound on a perforated tube. This perforated tube has one end plugged and the other end fitted with a steam connection. The steaming should be carried out in a steam box for the best and quickest penetration. This method, as can be seen, forces the steam through the cloth from inside and the steam in the box also penetrates from the outside of the roll.

Another procedure is to use a simple machine especially adapted for the purpose of steaming and which also spreads the cloth evenly to size. This process consists of running the cloth from a roll over live steam, over a spreader, and then over a re-rolling device.

These are merely examples of several steaming methods used to remove the curl from the fabric.

▼

Shiners in Silk-Rayon Ribbon

Technical Editor:
We inclose herewith sample of a taffeta ribbon made of silk warp and rayon filling constructed 6 reed, 3 ends in a heddle, with one end of 100-denier dull-luster rayon filling, 88 picks. Upon examining the fabric, you will note the barre appearance in the filling. (8140)

The defect in the samples submitted is due to uneven tension on the filling. The barre appearance is caused by the filling, and should rightfully be classed as shiners.

First, inspect your coppers if the filling is copped in the mill, and be sure that no drag is allowed on the cops. The filling must have very little tension. When the filling is low on the bobbins, it undergoes heavy tension, which causes uneven tension from the start of the bobbin to the finish. The new quiller attachment described on page 99 of our July issue is designed to overcome this.

Second, be sure that the filling is run with low tension in the loom. It is better to run this type of filling without any shuttle rings, placing a piece of fur in the end close to the tip of the quill and heavy enough to hold the filling from looping.

▼

Yarns for Blankets

Technical Editor:
We are considering manufacturing cotton-warp blankets and would like to know the size and quality of the yarns generally used. Would 10/1 or 12/1 combed peeler be satisfactory? We should like specimen layouts in both single and double weaves, if they are available. (8139)

Single 10/1 or 12/1 combed peeler cotton warp are all right if you are able to weave satisfactorily with it, but two-ply yarn would be safer to use as far as loom production is concerned. As you do not state the kind of blanket (camp, bed, etc.) or quality of filling to be used, it is rather difficult to answer your inquiry as to layouts. A good layout for general-utility blankets made with cotton warp is as follows: 66 in. wide, 84 in. long, 4 to 4½ lb. (finished blanket). Weave: plain four-harness twill. Warp: 36/2 cotton, 4½x6 reed, 2,280 ends, 85 in. wide in loom, 40.3 oz. loom weight, 9% gain from loom to finished, 27.2 oz. per yd. finished weight. Filling: 28 picks of 5/8-run yarn composed of 100% 44s or 56s S.A. wool or of 25% such wool and 75% shoddy, the shoddy consisting of coarse dark or light merino or of dark or light skirted worsted.

Bending the Binders

AND ADJUSTING ECCENTRICS AND PATTERN CHAINS ON WOOL LOOMS

By Benjamin F. Hayes

"WHAT a fool I was to leave that good job and come to work in this joint," remarked a fixer working beside me in a large worsted mill. He had just left a mill across the river which he could see from our windows. Our looms were 72-in. reed space running at about 128 picks per minute. He had been working on looms of 92-in. reed space running at about 115 picks per minute.

"What is the matter with this place?" I inquired.

"The job is no good. The binders are no good twice over," he complained. He was spending all his time, he said, bending the binders. Every time a loom banged off—for any reason—he had to bend the binder before it would run again.

I remarked that perhaps he was not bending the binders properly and offered to show him how the bending could be done in such a way that banging off of the loom would not affect the binder. He simply flew off the handle at this offer of mine to be helpful, declaring something to the effect that no graduate of that splendid establishment across the river needed to be shown how to bend a binder. Shortly after, he threw up his job with us and, I believe, returned to the other plant.

I examined some of his binders after he had gone and noted that not more than ½ in. of the shuttle was flush with them. When the loom banged off, the fast speed caused a straightening of the binder. Fast-running looms must have more binder surface touching the shuttle than is necessary with slow-running looms. At least 1½ in. is required in the former case—and is desirable in any case.

With sufficient binder surface flush with the shuttle, it is possible to run the binders looser; and loose binders make it easier for the weaver to place shuttles in the boxes. Also they are better for the loom. It should be unnecessary for the weaver to exert himself excessively in inserting shuttles; and yet there is no reason why the shuttles cannot be made to stay in position.

The secret is largely in bending the binders by the proper means. They should not be scarred by hammers. I have found it desirable to employ a large piece of babbitt which has been suitably hollowed out. By placing binders on this babbitt I can bend them quickly to any shape required.

All binders must have the same amount of leverage on the protector finger. The latter should meet the center of the binder near the inside end. Protection should be the same on all boxes whether they are rising or dropping on either single or double movement. The boxes must be carefully timed to give protection.

In my articles in TEXTILE WORLD I have often had occasion to point out the unfortunate manner in which the eccentric movement is neglected by many fixers. In this line, I recall a fixer of 12 years' experience coming to me one day and stating that he could not succeed in making a loom give a double movement of boxes without occasionally catching up and either throwing out the shuttle or breaking the picker stick. He realized, he said, that the boxes did not get to position on time, but he was sure that they were starting to move just as early as it was possible to make them.

I went to his loom, placed it on back center, set the upright shaft away from the eccentric gear, and turned this gear so as to give a faster movement to the boxes. I then replaced the upright shaft and timed the boxes to start even later than they had been starting, with the result that they got to position much earlier than before. The fixer told me that this was the first time he had realized that the boxes could be speeded up without altering the speed of the loom.

Systematic Care of Pattern Chain

I next want to discuss a subject which is often considered to be outside the scope of the loomfixer—the pattern chain. In the articles I write from time to time for TEXTILE WORLD, I am endeavoring to run through the whole gamut of a loomfixer's work, and I feel it most appropriate that something be said about the pattern chain.

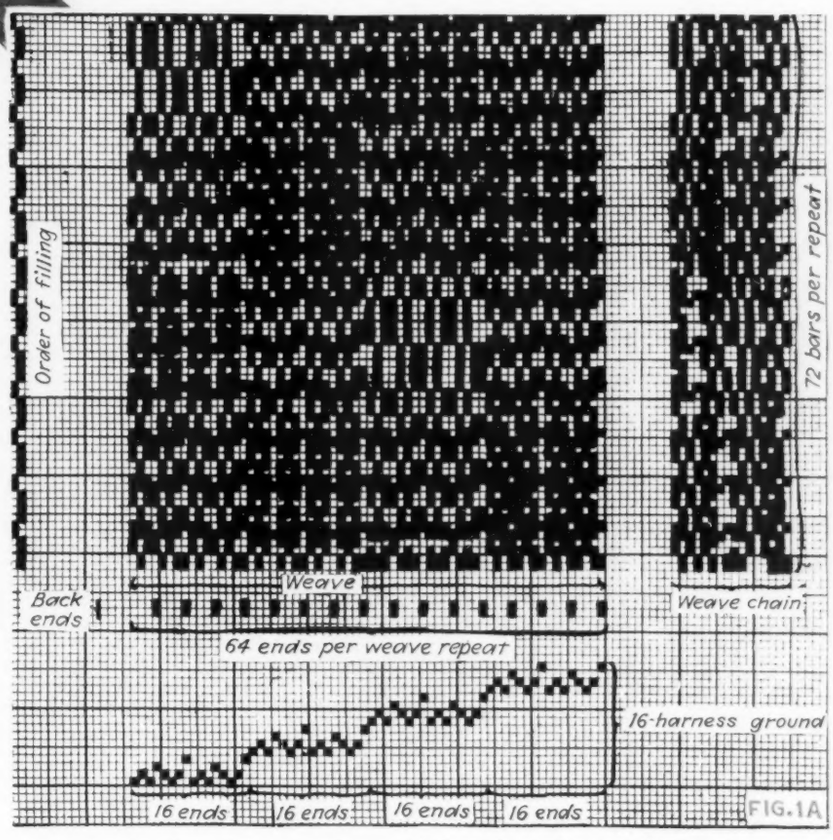
If a weave room replaces the worn parts of its pattern chains systematically, the cost need not amount to more than 25c. per year per loom. To attempt to save this 25c. by waiting until the chain gives out may cost $100 per year per loom, and even much more. Tubes, bars, and links are good for about twenty years of service, and their cost is low. It is therefore poor economy for a mill to risk damaging its cloth through harness skips. When the pattern chain is not true to the vibrators, the risers will not meet the center of the vibrators, with the result that chips are broken off the risers and they act like sinkers. The resulting harness skips often are not evident until the cloth goes over the perch, at which time the damage is so extensive as to be irreparable. In the meantime, another cut of damaged cloth is going through the loom. I have known both weavers and fixers to be discharged as a result of such harness skips, whereas the overseer himself was really responsible for the use of a faulty pattern chain.

I have in mind a mill where the loomfixer was not supposed to have anything to do with the pattern chain; but if he had started a warp with a new pattern chain without first tying up every bar of the chain either with string or wire, there would have been plenty of harness skips on the loom. A bar which has too much space between sinkers and risers can and should be tied up, but another bar in the same chain which does not have the large space between sinkers and risers cannot be tied up. The result is that the pattern chain gets out of line with the vibrators and the links on the end of the chain become so badly worn that the chain will not ride the pattern cylinder correctly because of the lost motion.

Return of the Matelassé

STUFFED-EFFECT WEAVES. DEFYING STYLE TRADITIONS. STAGE QUICK COMEBACK

By Carl C. Mattmann, Jr.
A. M. Tenney Associates, New York

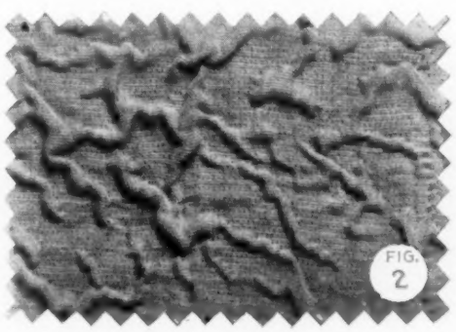


Construction of Fig. 1. Warp: 42/2/1 reed, 8¼ sley of 60/2 spun-rayon crepe, 58 turns, 2 right and 2 left; set 48 in. to finish 38½ in., or 6¼ in. to finish 5¼ in. Filling: 88 picks shot ¼ picks of 2 × 100-den. dull acetate and 2 picks of 41/2 spun-rayon crepe, right twist only. Weave: Fig. 1A.

WRITING in the March, 1933, issue of TEXTILE WORLD, my good friend B. D. Blackman referred to the matelassé as "the finest expression of the fabric stylist." At that particular time matelassé had been largely abandoned by the silk weavers mainly because it was so difficult and hence expensive to weave in competition with synthetics, but it was gaining ground again after a temporary lull in the rayon field. Last fall it died down to negligible proportions; but now it is back again, and it is destined to last through spring.

The reason for this sudden return, which is quite contrary to the usual cycles of style, may be, as Mr. Blackman has suggested, the unusual magnificence of the weave. No one can deny that the matelassé, with the possible exception of the sand crepe, which may prove to have become a staple, is the outstanding fabric of this outstanding age—the age of depression and New Deal.

We must remember, however, that in fabrics this age has marked a departure from the flat cloths of the boom years to the more distinctive weaves, such as the rough crepes, mats, sands, and mosses. To the consumer this has been a welcome and perhaps refreshing change, and it may be some time yet before we find it necessary to relieve the monotony by returning to the smoother fabrics. I do not mean to overlook the fact, however, that next summer the consumer will, as usual in the warmer months, turn to the simpler, washable materials; and it is the cloth which



Construction of Fig. 2. Warp: set 50 in. in reed, 36/6/1 reed, 1¼ ends of acetate and 72 ends of rayon crepe, 2-beam job—1 beam of 75-den. dull acetate and 1 beam of 75-den. rayon crepe, the latter laid 2 right and 2 left. Filling: 8¼ picks shot 1 pick of 75-den. rayon crepe, 2 right and 2 left (28 picks) and 2 picks of 80/2 spun rayon (56 picks). Weave: jacquard.

Construction of Fig. 3. Warp: Same as Fig. 2. Filling: 96 picks shot 1 pick of 75-den. rayon crepe, 2 right and 2 left (32 picks) and 2 picks of 75-den. acetate (64 picks). Weave: jacquard.

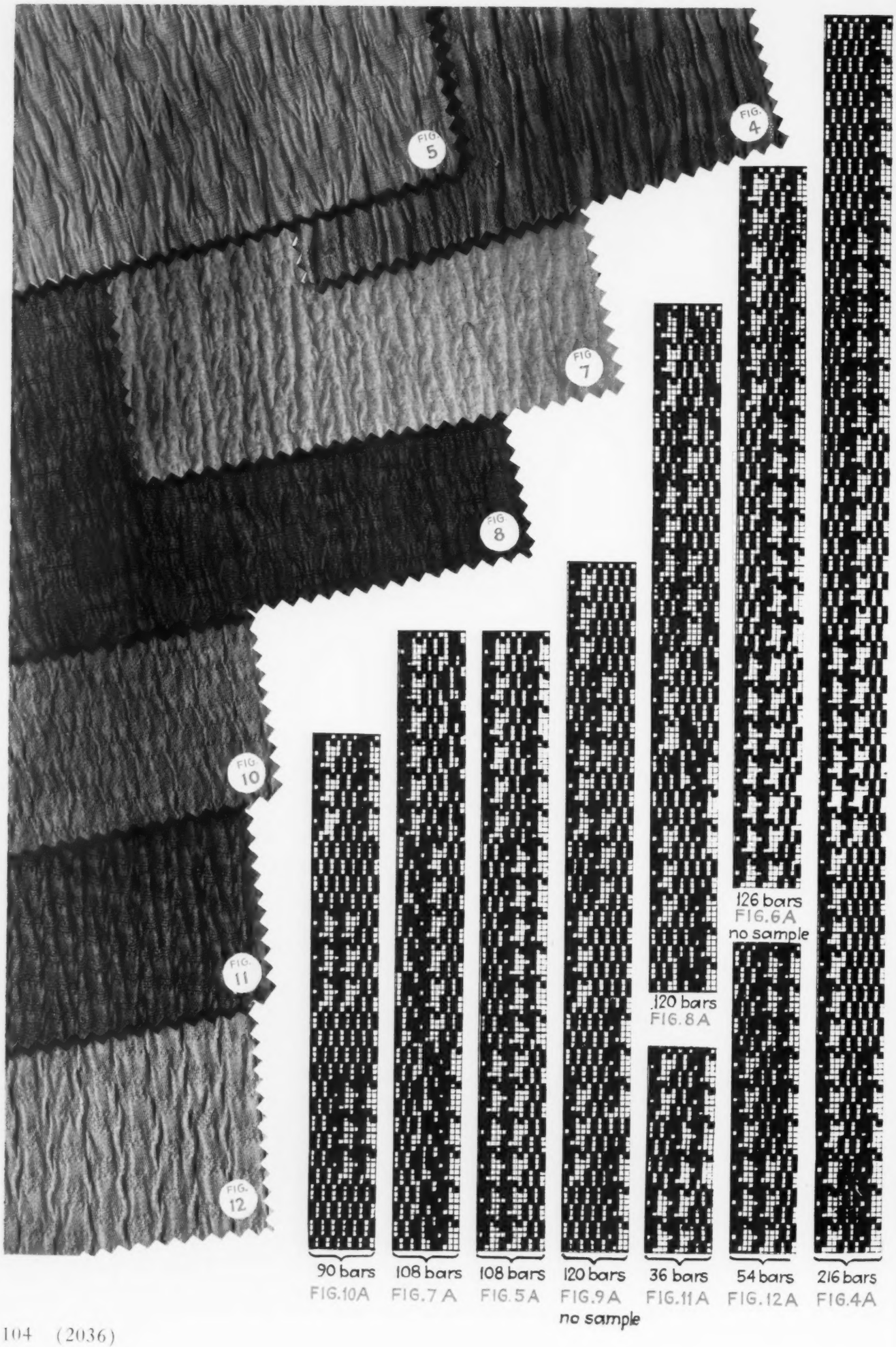
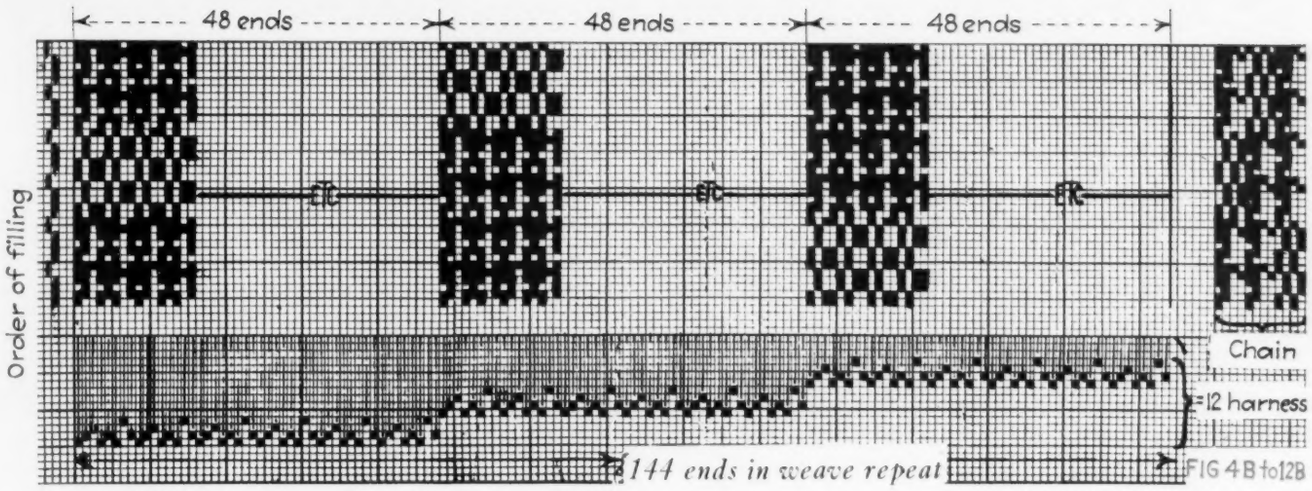


FIG. 5
FIG. 4
FIG 7
FIG 8
FIG. 10
FIG. 11
FIG. 12
90 bars
FIG.10A
108 bars
FIG.7A
108 bars
FIG.5A
120 bars
FIG.9A
no sample
120 bars
FIG.8A
36 bars
FIG.11A
126 bars
FIG.6A
no sample
54 bars
FIG.12A
216 bars
FIG.4A



next fall may demand that will indicate more clearly how soon we may expect a general reaction against the rough-surfaced fabrics of today.

There is a slight difference between the general run of matelassés which were popular in the vogue of two years ago and those which are and will be popular this fall, winter, and spring. The change is one of a reduction in the average size of the figure or "effect." In the previous vogue it was not uncommon to produce a figure running several inches in length. This had to be done by means of the jacquard. This time there will be few matelassés produced with figures any larger than those I am illustrating herewith.

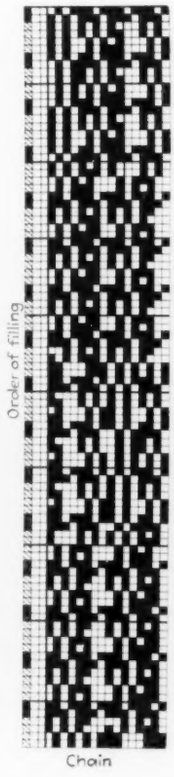
The reasons for this change are fundamental. The small effects not only drape better, but they cling better. In other words, they look neat and fit more tightly, and hence they conceal less the curving form of the wearer. In declaring this I have had in mind particularly the dress materials. For negligees, dressing gowns, and lounging robes, wherein the matelassé has perhaps its most secure foothold, the larger effects have a more appropriate place.

The change to smaller patterns does not necessarily mean that the jacquard will lose altogether its usefulness for matelassé work. Even in the smaller figures it can still produce the most intricate and hence interesting of the weaves. I show two jacquard samples herewith (Figs. 2 and 3).

Most of the accompanying illustrations, however, are shaft work; and I illustrate again how a large variety of weaves can be produced economically from one warp in the development of samples. All the chains numbered 4*A* to 12*A* are intended for the same warp and the same filling with the same drawing-in draft, "Figs. 4*B* to 12*B*." (No samples shown for 6*A* and 9*A*).

All weaves shown in this article are suitable for either silk or rayon constructions. They could be used readily also for wool or cotton matelassés.

Constructions of Figs. 4, 5, 7, 8, 10, 11, and 12. *Warp: set 48 in. in reed 35/4/1 reed, 140 ends of 100/34-den. dull acetate. Filling: 144 picks shot 4 picks of 100/34-den. dull acetate and 2 picks of 100/40-den. rayon crepe, 50/55 turns, one way only. Chains: Figs. 4A to 12A. Drawing-in draft: one figure captioned "Figs. 4B to 12B." This figure shows also the application of chain 11A and the resulting weave.*



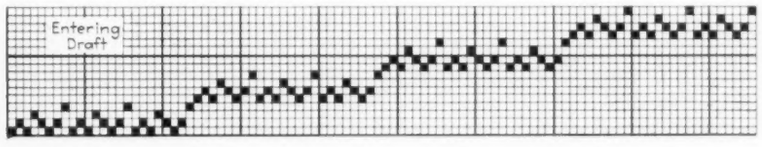
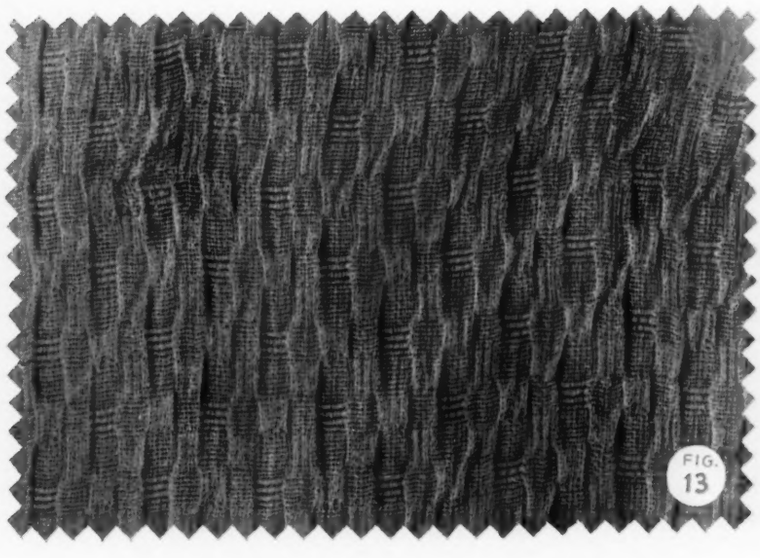


FIG. 13A

Construction of Fig. 13. *A sheer matelassé. Warp: set 50 in. reed, 40/3/1 reed, 120 ends of 75-den. 28-turn voile-twist rayon, 1 beam. Filling: 120 picks shot 4 picks of 75-den. 28-turn voile-twist rayon and 2 picks of 100-den. rayon crepe left twist only. Drawing-in and chain drafts: Fig. 13A, 16 shafts, 4 blocks of 24 ends each or 96 ends per repeat of weave, 96 picks per repeat.*



10 Million Women

FROM COAST-TO-COAST GET MESSAGE OF "SILK PARADE"

UNDETERRED by such ominous problems as the labor insurrection in the textile industry, "The Silk Parade" marched its way successfully across the continent and—from the standpoint of publicity, at least—made September a red-letter month in the silk industry's calendar. While it was still too soon, at press-time, to make any reliable analysis of the sales results of the event, early reports from both silk manufacturers and stores were very encouraging. The parade, which was engineered by the International Silk Guild, carried the message of the "Queen of Fibers" to about 10,000,000 women in 150 American and Canadian cities.

The event proceeded with an almost military precision; the week of Sept. 10 was devoted to the New York Metropolitan area, and the week of Sept. 17 to the United States and Canada as a whole. A high degree of enthusiasm marked the support given the drive by 5,000 stores from coast-to-coast. Here are a few statistical nuggets gathered from last-minute reports: The Guild bombarded the silk trade and the stores with an abundance of promotional data which covered all aspects of merchandising, and was sent out regularly to a mailing list of nearly 15,000 key units. Generous news column space was devoted to the event by about 500 newspapers. Stores in major cities staged approximately 40 silk fashion shows. Radio promotion included nation-wide hook-ups with 225 stations.

New York stores "went silk" in a big way during the first week, and this proved an effective start for the subsequent national event. Among the features of the second week were miniature silk parades in various cities; highlights were the elaborate parade staged by Marshall Field & Co., Chicago, and a similar event in Milwaukee. In addition to standard promotional methods movies also aided; a news reel, contrasting old silk apparel styles with those of today was filmed by the Guild in conjunction with the Museum of the City of New York, and was shown in many cities. The same museum also arranged a historic silk costume display, as did the Brooklyn (N. Y.) Museum of Art.

One notable and rather unexpected aspect was the strong support given the parade by Chambers of Commerce in leading cities. These civic organizations maintained close contact with the Guild; data was supplied to them and they in turn sent out regular bulletins to members, giving details on how to exploit the "Parade" in stimulating silk merchandise sales.

The key thought of the "Parade," as expressed by a retailer who took a leading part, was to "restore silk as the backbone textile of the store," and the hearty support given the event by retailers generally indicated that much progress had been made in this direction.

Discussing the result of the campaign in terms of sales, Guild officials emphasized that the "Parade" was not conceived simply to effect a brief high record for silk volume, but rather to mark the start of a long-range promotional effort to restore silk to its time-honored place as the Aristocrat of Textiles.

Market sentiment strengthened preceptibly as a result of the drive, though leaders pointed out that this was more anticipatory than actual since the real benefits would not be evident for some time.

ADVERTISING PAGES REMOVED

Textile World Analyst

INDUSTRY SHOULD MOVE UP FROM DEPTHS AT RAPID RATE

Textile Activity Index: Textile mill activity during the first eight months of 1934 was 18½% below that for the corresponding period of 1933, and 13% below that for the first eight months of the average year in the 1924-31 period, roughly assumed as "normal." Comparisons between August this year and August last year are meaningless, since in one case organized curtailment was in effect, while in the other the first effects of the codes and processing tax on buying were still being felt. Although complete statistics for September are not yet available, strike conditions reduced activity radically; consequently comparisons for the period including that month will show a still sharper drop from last year.

THE textile industry, having soared to new heights of activity in the summer of 1933, plumbed new depths of inaction a year later. September, 1934, when the votes are all in, will probably have made an all-time record for lack of motion. The general strike, added to the curtailment which had already been in force, was responsible, of course.

We find it necessary to gloat a bit. Last month, with the strike just started, we predicted that a maximum of a month's serious interference with normal operations in the industry would result; that this interference should not exceed 50% while it lasted; and that the net result of these two estimates would be a maximum of half-curtailment of a normal month's production. Which, we contend, was within what one might call reasonable limits of accuracy.

How about the last three months of the year?

It is our belief that textiles will move rapidly up from the depths and that the last quarter of 1934 should be a good one, from the standpoint of sales and mill activity. Inventories have been reduced by the strike, and the normal post-Labor Day revival delayed. Quite aside from general conditions, the textile picture itself should be encouraging. Again, we must emphasize that we are discussing volume and not profits.

Furthermore, it is now evident that the textile improvement will be further stimulated by a general pick-up. The nation seems to have passed through, and now to be emerging from, one of those low spots which have dotted the recovery period.

In this connection, here is a note from our Washington office which we feel is accurate, and which bears out our prediction published on this page last month:

"In sharp contrast with the uneasiness being manifested by business men and bankers is the cheerfulness of the general public. Reports from all parts of the country show that the rank and file just refuses to be pessimistic. This is even true of the people that have suffered most in the towns and areas dependent upon a single industry. No matter how hard they may have been hit in the bread-basket, they feel that the worst is over and that it will not be long before the plants or the mines open again."

This sort of attitude is extremely important.

Just a word about prices. It will be noted from Tables I and II that strike conditions during September tended to increase manufacturing margins in carded cotton fabrics, but had little total effect on yarns.

The strike caused some erratic changes in the cotton group of TEXTILE WORLD's price index numbers. Thus we find raw cotton declining three points, yarns dropping two points, while gray cloth gained seven points. In this connection it must be understood that many firms withdrew cloth prices and that others quoted their fabrics on a nominal basis.

Wool index numbers declined slightly in a featureless market. The only outstanding change was in the fabric index, which dropped 19 points. This was to be expected, however, as this index had failed to adjust itself to lower raw material prices in previous months. Raw silk set an all-time low for monthly average.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	September, 1933	19.5
October, 1931..	13.3	October, 1933...	19.1
January, 1932..	12.1	November, 1933	17.7
June, 1932.....	9.5	December, 1933	17.6
July, 1932.....	9.1	January, 1934..	18.4
August, 1932..	11.1	February, 1934.	19.1
September, 1932	13.0	March, 1934...	18.3
October, 1932..	12.6	April, 1934.....	17.6
November, 1932	10.7	May, 1934.....	15.8
December, 1932	10.6	June 1934.....	15.4
January, 1933..	10.4	July, 1934.....	15.5
February, 1933.	10.1	August, 1934...	16.6
March, 1933...	10.2	September, 1934	18.6
April, 1933.....	11.4	Sept. 5.....	17.6
May, 1933.....	15.6	Sept. 12.....	18.7
June, 1933.....	20.6	Sept. 19.....	19.7
July, 1933.....	23.4	Sept. 26.....	18.2
August, 1933...	21.4		

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	September, 1933	21.3
October, 1931..	12.7	October, 1933...	20.0
January, 1932..	10.9	November, 1933	18.4
June, 1932.....	9.9	December, 1933	18.5
July, 1932.....	9.6	January, 1934..	18.3
August, 1932..	9.7	February, 1934	16.5
September, 1932	12.8	March, 1934...	16.8
October, 1932..	12.3	April, 1934.....	15.9
November, 1932	11.3	May, 1934.....	14.3
December, 1932	10.9	June 1934.....	13.1
January, 1933..	10.2	July, 1934.....	14.7
February, 1933.	9.4	August, 1934...	15.3
March, 1933....	9.8	September, 1934	15.6
April, 1933.....	10.1	Sept. 5.....	15.7
May, 1933.....	12.3	Sept. 12.....	15.9
June, 1933.....	15.4	Sept. 19.....	15.8
July, 1933.....	23.2	Sept. 26.....	15.0
August, 1933...	23.5		

▼ ▼ ▼

Textile World's Price Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925, average..	187	188	189	176	223	229	224	233	143
1926, " ..	140	155	157	149	184	189	179	207	136
1927, " ..	140	153	159	153	181	184	187	195	119
1928, " ..	160	162	162	166	199	202	199	197	110
1929, " ..	153	144	145	167	176	179	192	211	108
1930 " ..	108	125	123	144	127	139	161	202	179
1931, " ..	68	93	92	119	99	112	134	161	54
1932, " ..	51	76	73	100	78	97	115	128	34
1933, " ..	84	116	110	113	116	135	139	181	35
Jan. 1934.....	124	151	139	144	153	180	181	222	32
Feb. 1934.....	132	148	146	144	153	180	181	222	34
Mar. 1934.....	132	149	145	142	152	178	180	209	31
Apr. 1934.....	128	144	141	141	147	176	180	209	30
May 1934.....	125	136	132	140	140	166	170	209	27
June 1934.....	132	136	132	140	138	160	169	209	26
July 1934.....	135	148	136	140	138	159	161	209	25
Aug. 1934.....	141	150	136	140	130	150	160	209	25
Sept. 1934.....	138	148	149	144	127	145	155	190	24

Note: All cotton indices since Aug. 1, 1933, include processing tax.

"S" and "Z" Twist

READERS EXPRESS OPINIONS ON PROPOSED CHANGE IN TWIST NOMENCLATURE

ON page 59 of our August issue we expressed the belief that it would be impossible to persuade the entire textile industry to accept as standard any existing terminology for designating the directions of twist, because all terms now employed have been used too long with directly opposite meanings by different branches and individuals. Confusion will dog the use of those terms forevermore. Therefore we proposed that the industry abandon them and adopt altogether new terms which embody some unmistakable key to their meaning. We specifically recommended the terms "S" and "Z," each to be applied to the direction of twist which corresponds to the inclination of the oblique central portion of the letter, as indicated by the accompanying diagram.

Letters and telephone calls from readers soon made it evident that the industry was interested in our proposal; and on Sept. 11 H. E. Bishop, executive secretary of the Throwsters Research Institute, called a meeting in New York to discuss the subject. Present at that meeting were H. A. Mereness, National Federation of Textiles; A. M. Tenney, A. M. Tenney Associates; A. L. Brassell, United States Testing Co.; F. Noeschel, Botany Worsted Mills; H. J. Tynan, Tynan Throwing Co.; and E. D. Fowle, TEXTILE WORLD. In effect this group established itself as a committee to bring the matter to the attention of the various trade associations.

Following are extracts from letters received by TEXTILE WORLD:

I certainly think you have hit on something very worth while. Personally, I would be in favor of the adoption of definitions based on your suggestion. How would the following line up with your ideas? Definition of twist—"In the case of yarn or cord held in a vertical position, if the spirals incline upward to the left, the twist is S-twist, and if the spirals incline upward to the right, the twist is Z-twist."—*W. H. Whitcomb*, secretary Committee D-13, A.S.T.M.

We believe that you have hit upon a very sensible way out of the present difficulties for designating the direction of twist. I am very much in favor of the abandonment of all present nomenclature on this subject and the adoption instead of the "S" twist and "Z" twist as you have suggested.—*Warren E. Emley*, Bureau of Standards.

In my opinion the [D-13] definition . . . serves all practical purposes. It appears to me that any elaboration or modification of this definition serves to muddle its meaning.—*Martin Castricum*, United States Rubber Products, Inc.

I believe you should present the idea to the D-13 Committee . . . Personally, I should be glad to vote in favor of the "S" and "Z" terms for describing twist, as they are easy to remember and would avoid all confusion.—*R. A. Butler*, Martha Mills.

I hope that the trade will come in line quickly, for it is one of the most important things that affects us all. We have always had a great deal of trouble in talking with mills about handling right- and left-hand twist, for we have regular- and reverse-wind spindles for our No. 90 machines.—*Ralph L. Chisholm*, Universal Winding Co.

After a careful study of this paper both by Mr. Wilson, our vice-president, and myself, we feel inclined to give the proposed terminology our unqualified O.K.—*F. S. Cobb*, Seamans & Cobb Co.

The two letters ["A" and "Z"] are further apart in sound than "S" and "Z" as, for instance, in telephone conversation, etc.—*O. A. Belger*, The Belger Co.

[Upon receipt of Mr. Belger's letter, we conducted careful tests on both telephone and dictaphone, and in no case did any confusing of the terms "S" and "Z" develop.—*Editor.*]

The other day we had some men in from the American Thread Co. and I showed them your article and they, like myself, agreed heartily with you that it's a very happy solution.—*D. C. Scott*, Henry L. Scott Co.

Committee D-13 certainly ought to do something definite and constructive in regard to this at an early date.—*L. A. Graybill, Jr.*, Bibb Mfg. Co.

I hope your suggested definitions will be accepted by the A.S.T.M. and will do what I personally can to help the cause along.—*H. A. Mereness*, National Federation of Textiles, Inc.

I am in favor of your suggestion for an "S-Z" twist terminology. You publishers can do great work in raising your brain child into full accepted manhood.—*Alfred Suter*, textile engineer.

I most certainly agree that the terminology must be revised to incorporate the three qualifications referred to in the fourth paragraph of your article, and feel that in a general way the symbols "S" and "Z" would serve as a means of meeting these qualifications . . . Is it not true that many people write the letter "S" [and also the letter "Z"] backwards? . . . Perhaps a good way of describing this would be "upright twist" and "downright twist."—*A. W. Hansen*, Goodyear Tire & Rubber Co.

Your article should take first prize for offering the simplest and most easily understood definition of twist.—*B. H. Foster*, United States Rubber Products, Inc.

If a simplification of the definition of twist could be worked out . . . and universally adopted, . . . it would be a step in the right direction.—*H. L. Marsh*, Callaway Mills.

I would greatly appreciate 40 copies of . . . the article on twist . . . to circulate among members of the Wool Sub-committee [of D-13].—*G. E. Hopkins*, Bigelow-Sanford Carpet Co.

. . . . very good, but . . . . possibly that "S" will become confused with "soft" twist or something.—*C. D. Brandt*, Texas Technological College.

I am in hearty agreement . . . . We shall undoubtedly employ this designation in our lecture and class work from now on . . . . I trust that you will follow up this article with some more heavy artillery . . . . *E. R. Schwarz*, Massachusetts Institute of Technology.

I think there is much merit in the idea.—*Herbert J. Ball*, Lowell Textile Institute.

. . . . most constructive suggestion.—*A. C. Clifford*, Western Electric Co.

I am in accord.—*C. H. Forsaith*, Nashua Mfg. Co.

I shall propose this nomenclature for Federal Specifications.—*Wm. D. Appel*, Bureau of Standards.

. . . . do not see how they [the terms "S" and "Z"] can be improved upon.—*Walter A. Simond*, Sulloway Mills.

For all practical purposes the present terms in use offer no real hardship to the industry or trade served.—*H. Grandage*, Spool Cotton Co.

I think your suggestion is an excellent one. . . . It is possible that an international agreement could be reached—*W. R. Marsden*, Kelly-Springfield Tire Co.

I am not quite sure that the new terminology will simplify matters. . . . I have before me a 120s cotton. I cannot see whether it is an S-twist or a Z-twist.—*Adolph J. Winkler*.

The simplification of twist designation will tend to reduce confusion in interpretation and greatly minimize the chance of misunderstanding. . . . Let us adopt the new and throw the old in the scrap pile.—*R. A. C. Scott*, Nooscotia Fabrics.

The suggestion appears to be a novel solution of a vexatious problem.—*H. M. Bunker*, H. M. Bunker & Co.

You offer a logical and practical solution. . . .—*J. M. Weaver*, Raybestos-Manhattan, Inc.

I think you have found a particularly happy solution.—*A. Weiss*, DuBois Silk Throwing Co.

I am very much in favor of your proposals.—*H. Levine*, Silk Grading & Testing Laboratory.

. . . A full solution.—*Geo. F. Brietz*, Selma Cotton Mills.

. . . Logical and unique.—*Kenneth H. Barnard*, Pacific Mills.

Your suggestion is a very common-sense one. . . .—*Hugh Christison*, Arlington Mills.

. . . Would clarify twist terminology.—*W. E. Shinn*, Clemson College.

NEW MACHINERY & PROCESSES

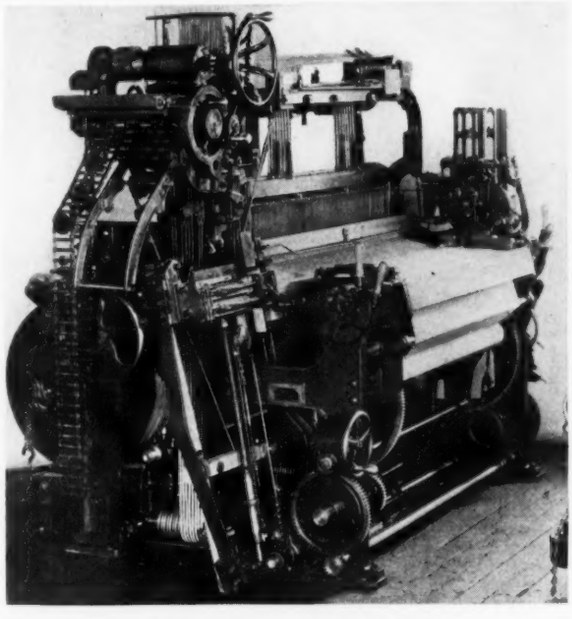
Four New Looms

Had the Southern Textile Exposition been held this month as originally planned, the loom builders would probably have dominated the show with their scheduled premiere of six brand new looms. Four of these machines—three for cotton and one for wool—are products of the Crompton & Knowles Loom Works, Worcester, Mass.; and this company is now staging its own exposition at its home plant with working demonstrations of all its new equipment.

Certain new features are common to all three of the cotton looms, which include a Type C3 Cotton King bobbin-changing cam terry-towel loom, a Type C3 Cotton King bobbin-changing head-motion loom, and a Type C3 Cotton King bobbin-changing dobby dress-goods loom. Outstanding among these common features are higher operating speed and radically increased capacity of shuttle, beam, and cloth roll.

The terry-towel loom is stated to operate satisfactorily at "at least 180 picks per minute," but we have seen it operating in the company's exhibit at 220 picks per minute without apparent difficulty. (The usual speed of ordinary terry looms is less than 150 picks per minute.) The head-motion loom, which is primarily for cotton pants cloth, is reported to have a speed range of 152 to 162 picks per minute, the exact figure depending on the yarns, fabric construction, and loom width. The dobby loom is suitable for shirtings, voiles, lenos, handkerchiefs, fancy tickings, huck towels, and many other fabrics; therefore it is advisable to say only that its speed is materially greater than that of any previous loom designed for the same work.

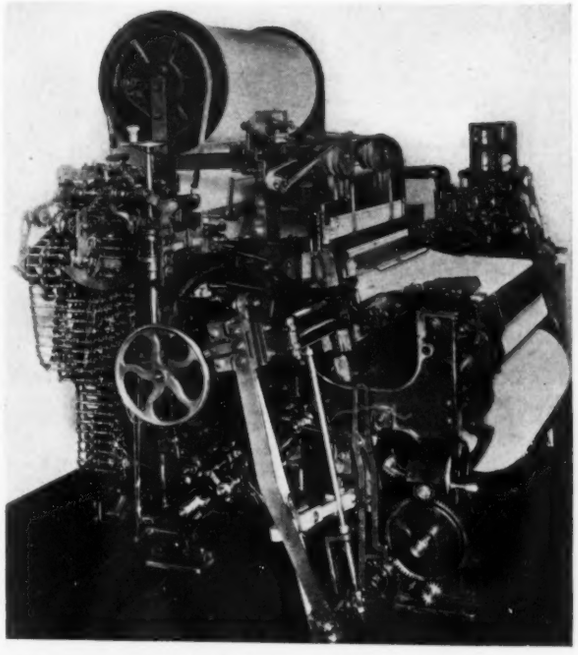
The three cotton looms take a new size of shuttle—17 in. long, 2 3/8 in. wide, 1 3/4 in. back, and 1 1/4 in. front. This can hold an 8 3/8x1 3/8 in. bobbin, as against the 8x1 1/4-in. bobbin now generally employed. The new bobbin therefore holds approximately three times as much yarn as the old, or 2,360 yd. per bobbin as against 840 yd. in the case of, say, singles 13s yarn. This fits in with the present trend toward large-package spinning, paving the way for this advance in the case of filling yarn, and means a reduction in spinning-frame doffing. For example, in the case of 13s yarn an estimate has shown that the number of doffs per 8-hr. day might be reduced from 7.74 doffs to 2.91, since spinning time per doff would be increased from say 57 min. to 160 min. The larger bobbin means also that only one-third the usual number of bobbins will have to be handled by truckers, battery hands, etc., and that only one-third as many bobbins as formerly will have to be kept in stock. Fewer bobbins mean fewer bunches to be converted into waste by automatic looms. Fewer transfers produce fewer filling breakages at transfer. It might be expected that a larger shuttle would require considerably wider opening of the shed, but the amount of increase has been reduced to negligible proportions by increasing the throw of the lay, so that the shuttle travels closer to the harnesses and hence nearer the widest part of the shed.



Cotton King head-motion loom

Similar benefits are afforded by the larger beam, which has been increased from the usual maximum diameter of 18 or 20 in. to 24 in., giving 50% more yardage. There is less waste of yarn in slashing and weaving, and fewer beams are required for a given production.

In the case of the large cloth roll, which has been increased from the usual maximum diameter of 16 or 18 in. to 22 in., the gain in yardage is approximately 75%. To allow for this roll, an entirely new take-up has been designed. As may be seen in the accompanying photograph of the head-motion loom, the roll is supported in a segmental device. A heavy coiled spring acting against this segment serves to keep the cloth roll up against the sand roll. As the cloth roll increases in diameter, it forces itself downward and in toward the center of the loom. Thus, the large roll does not require more alley space. It should prove of particular interest to towel mills, which often have difficulty in producing a roll large enough to contain a complete cut. It means less handling in the weaving and inspecting departments and less sewing of pieces together in the finishing department. In addition the new take-up exposes the back of the cloth as it is wound up, thus giving the weaver of towels, for example, an opportunity to examine the loops on both sides of the terry fabric.



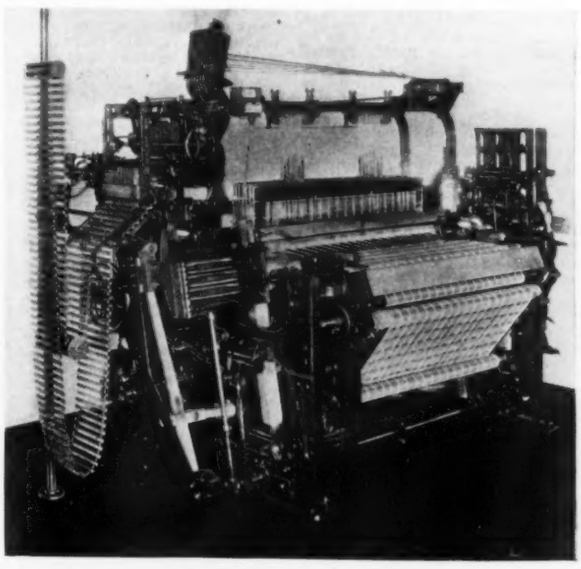
Cotton King terry-towel loom

We have now mentioned the major features of the new cotton looms. There are countless minor improvements which would take a good-sized catalog to describe. The increased speed has been gained by the adoption of several improvements in the design of the picking motion and the use of larger, stronger parts. Some features have been borrowed from the Super-Silk loom developed a short time ago. The new cotton looms are heavier—by around 500 lb. in the case of a small cam loom. A stop motion (electric) has been applied for the first time to terry warps, the drop wires being supported automatically at the slack pick.

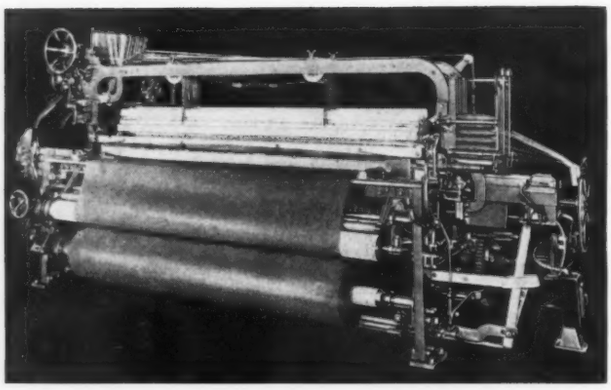
The terry loom has either 2x1- or 4x1-box capacity, regular three-pick terry motion, and four-harness undercam motion. The dobby loom, with new universal dobby, has 20-harness, 3/8-in. gage, 4x1-box capacity. The pant-goods loom is equipped with a 16-harness, 5/8-space intermediate head including drop-box section, and is available in 2x1- or 4x1-box capacity.

The automatic wool loom, which is known as the Type W3 high-speed bobbin-changing woolen loom, is suitable for the entire range of woolen and worsted fabrics, including heavy, hard-beaten goods, and it operates at a speed 10% greater than that of previous models. It marks something of a departure from the restrictions imposed on mills by specialty looms and will be built up to 120 in. between swords with 26-harness and 4x1- or 4x4-box capacity.

Outstanding among the new



Cotton King dobby dress-goods loom



High-speed bobbin-changing wool loom

features of the wool loom is the floating binder, which binds the shuttle very tightly when it enters the box and releases it entirely as it leaves. The term "floating" comes from the fact that neither end of the binder is fixed, except when the shuttle is to be held, and then both ends are pressed in firmly. Thus, the shape of the binder is constant and it requires no bending by the fixer at any time. The pressure is sufficient to prevent an inactive shuttle from creeping for an indefinite period. The binder control will increase the life of picker sticks and pickers.

Another important feature embodies a series of improvements affecting the starting and stopping of the loom. The shock of protection has been eased by the use of a compression spring backing up the bunter. The bunter gives for a distance of about § in. when struck by the dagger, thus minimizing the jar. An efficient brake having a drum of unusually large diameter stops the loom several inches short of front center. An ingenious shipper motion operates with unusual ease and speed, with the result that when the loom protects, the clutch is released immediately. The clutch exerts no end thrust on the shaft. New to looms of this weight is a direct drive from the motor, the motor pinion meshing directly into the gear on the crankshaft without countershaft.

The numerous features include the option of high-roll or low-roll take-up; driving gears between crankshaft and bottom shaft on both ends of loom to give rigidity, better picking, and less crankshaft breakage; two-piece bottom shaft to simplify removal; a range of speed from 85 to 136 picks per minute; more rugged and easily adjusted take-up motion; arrangement by which position of lay indicates cause of stoppage as either warp or filling; 5- or 6-in. increase in distance from fell of cloth to back roll to give more elasticity to warp; machined and interchangeable parts; elimination of all cast iron in lengthwise parts; and stronger and more easily adjusted head motion. The W3 loom is 400 to 500 lb. lighter than the "Verybest" model.

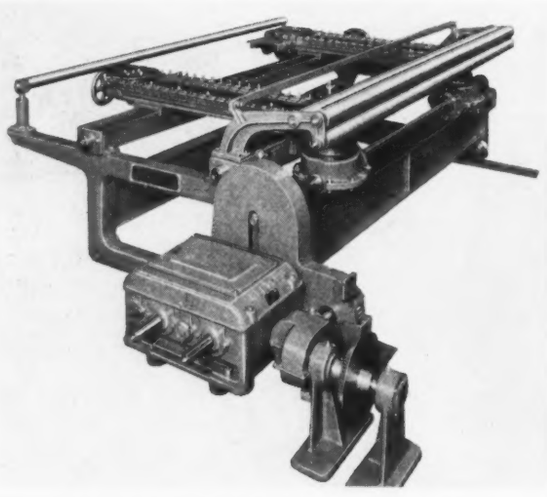
Short-Model Tenter

One of the new machines which Textile-Finishing Machinery Co., Providence, R. I. had intended to show this month at the Southern Textile Exposition is the short-model, automatic, ball-bearing, double-beam tenter shown in the accompanying illustration. This machine embodies all the refinements found in the standard-size tenter, including the following: self-contained driving units supported on heavy double beams; chain-whip eliminator; ball bearings throughout; leak-proof lubrication system; and latest-type clips with new hold-back device.

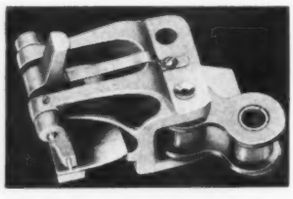
Another machine which was to have been featured is the Super-Sanforizer, with specially constructed jacketed-type cylinder 84 in. in diameter; full automatic control of ironing shoes; improved speed-change gear boxes; and equipped throughout with ball bearings, Alemite fittings, and leak-proof oil seals. This Sanforizer was developed a few months ago mainly to enable a greater production, without increase in labor or power costs, than is possible with earlier models.

Sanforizing Tenterett

A tenterett or clip expander which can be incorporated into any existing Sanforizing machine is one of the new devices which H. W. Butterworth & Sons Co., Philadelphia, had planned to display this month at the Southern Textile Exposition. The tenterett is designed to feed the fabric straight into the Palmer finishing machine section of the Sanforizer in such a way as to prevent any variation in the width of the finished material. One of the features of the clip expander is an improved roller-chain connecting link. This is rigidly reinforced, with roller control in the nippers. It has an Allegheny-metal-fastened insert, Allegheny metal plate, and bronze spring.

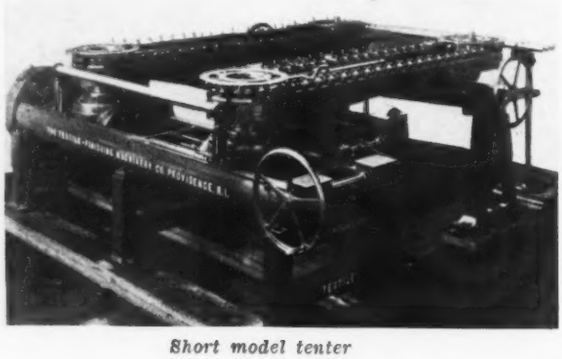


Sanforizing tenterett, with close-up of clip at left

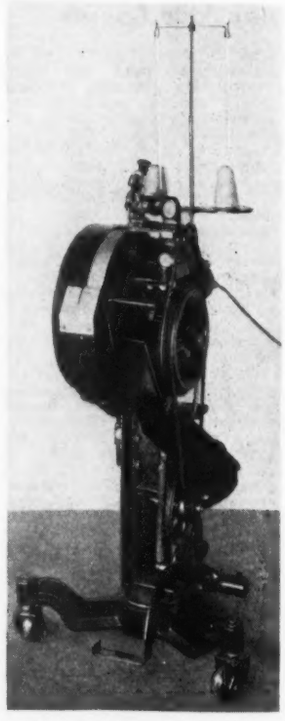


Selvage Harness

Steel Heddle Mfg. Co., Engineering Division, Philadelphia, has placed on the market a new harness designed to produce a selvage as perfect as the fabric itself. Operated in conjunction with standard selvage motion, the unit is self-contained, positive in action, light in weight, and easily attached. Length is governed by fabric and loom conditions. A feature is the eye-coupling of the single rod-hook attachment, designed to permit a flexible harness movement and yet keep perfect alignment. Another feature is the specially constructed shoulder on the heddle-bar or rod to keep the outside end guides in proper position and heddles properly spaced.



Short model tenter



Piece-end sewing machine

Portable Piece-End Sewing Machine

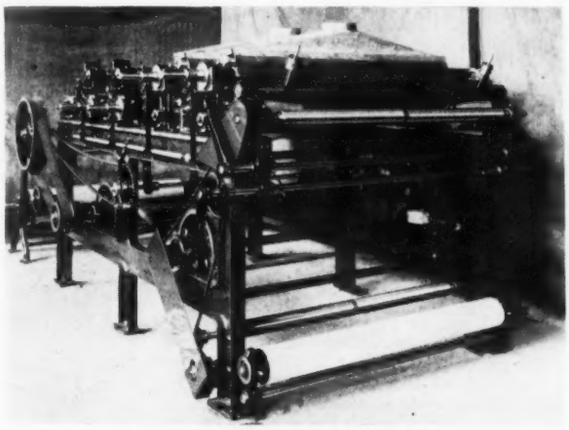
The portable piece-end sewing machine shown in the accompanying illustration is one of the newer developments which Singer Sewing Machine Co., Inc., Singer Bldg., New York, had intended to show at the Southern Textile Exposition. This machine makes an overedge stitch and trims the edge at the same time. A chute sends the trimmings away from the machine and operator. A hand-operated control for changing the length of the stitch makes it possible to shorten the stitch at the start and finish of the seam, thereby reinforcing the edges where the greatest strain occurs. The machine is designed to accommodate material of any width, and is said to be particularly suitable for stitching rayon fabrics. It is mounted on casters, making it easily protable for repairs and other emergency service.

Shear for Projecting Threads

One of the improved machines which was to have been demonstrated at the Greenville Show this month, now postponed, is a new model of the seam-protecting shear developed a few years ago by the Curtis & Marble Machine Co., Worcester, Mass., for removing projecting threads

on the selvage and surface of cotton and rayon fabrics. The new model operates at a speed of 80 yd. per minute, clears threads on both face and back, and is equipped with ball and roller bearings throughout. It is built with from two to four blades.

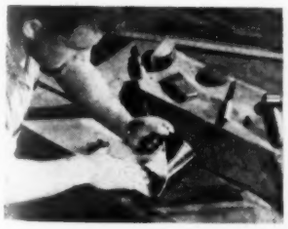
The automatic seam-protecting device has been completely redesigned. A detector roll revolving against the cloth in the lower part of the machine is moved out of its normal position by a seam or any foreign article, such as a screw, nail, or reed wire in the cloth. This movement serves to operate a reversing motor which moves the cloth away from the revolving blades. An adjustable timing device governs the interval between detection and operation of the motor and serves to replace the fabric at shearing position after the seam or foreign article has passed the blades. The reversing of the motor is instantaneous, and the distance of the seam from the blades when the motor is to operate can be adjusted at will. An automatic stop shuts off the motor when no cloth is passing through the machine in order that useless running and overheating of the motor due to carelessness on the part of the operator may be avoided.

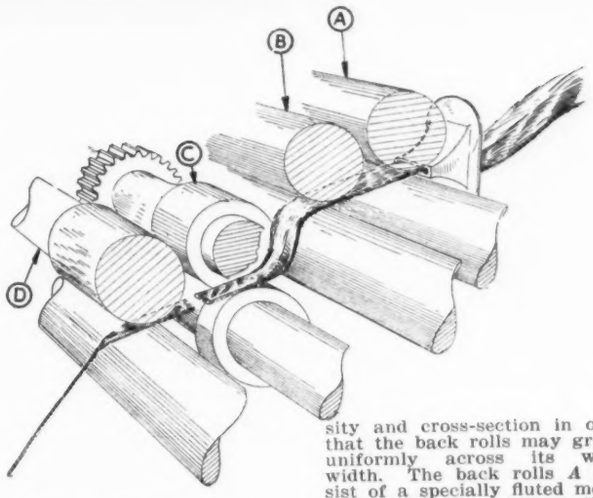


Shear for projecting threads

Endless Belt

A new method of making belts has been developed by Fred G. Skeyhand, of B. F. Goodrich Co., Akron, Ohio. The improved construction, known as the Plylock Belt Joint, is said to overcome any tendency of outside seams to open up during severe service. This is accomplished by countersinking the seam below the belt surface in such a manner as to relieve strain and shield it from wear or windage. A thick rubber cushion, reinforced with bias fabric and vulcanized in position, aids in the protection. The improved construction will be featured in all Goodrich factory-built endless belts, and agents, jobbers, and users will be licensed and trained to construct the joint.





Controlled-Draft Roving

A bottom roll with a concentric ring or "tongue" fitting into a top roll with a concentric groove is the basis of a new long-draft single-process roving system developed by Saco-Lowell Shops, 147 Milk St., Boston. The groove serves to fold in the selvages of the sliver, thus counteracting the spreading apart and separating of the fibers, preventing the throwing off of lint, and brushing out a considerable amount of the small leaf and seed particles which ordinarily are carried through the roving operations.

As a result it becomes possible to produce direct from drawing sliver in one operation a roving sufficiently fine to permit the spinning of the more usual yarn numbers from double roving. The product of the new system is said to be cleaner than that produced by conventional roving methods and to be fully equal to the latter in all other particulars. The frame itself is simple and rugged in construction. It is said to be durable, easy to operate, and to require no unusual cleaning. The drafting equipment can be applied to conventional roving frames.

The accompanying sketch shows clearly the mechanism which has been devised to accomplish these results. The sliver, instead of being fed to the drafting rolls through the usual round trumpet of the traverse motion, is passed through a "forming" trumpet designed to condense the stock into a ribbon of uniform density and cross-section in order that the back rolls may grip it uniformly across its whole width. The back rolls *A* consist of a specially fluted metallic bottom roll and a similarly fluted metallic-shell top roll. The fluting is designed to preclude all slippage; and this fact, in combination with the uniform flat sliver and very slow speed of the rolls (one-quarter to one-sixth that usual on slubber back rolls), is reported to give an accurate control of the fibers as the drafting is begun. The first drafting unit is completed by another set of similar rolls, *B*. The total draft of this back set is equal to the total draft of an ordinary slubber.

The back rolls *C* of the second drafting element embody the tongue-and-groove combination already referred to. This pair, known as the "folding" rolls, is at a lower level than rolls *B*. The difference in level permits the sliver to be folded in by the edges of the groove before the cotton comes in contact with the tongue, thus giving a gentle and gradual folding action which is completed before the nip is reached. The second and final draft takes place between these folding rolls and the front rolls *D*, which are of the regular roving type with fluted bottom roll and cork- or leather-covered top roll. The draft in the second set of rolls is well in excess of the total draft of an ordinary roving frame. The folding rolls, an invention of W. G. Reynolds, now a member of the Saco-Lowell engineering staff, are the heart of the system.

On 1-in. cotton the total draft of the machine ranges from 10 to 30; and of course on better than 1-in. staple considerably higher draft is practical. Since the sliver supply to each spindle is 12 to 14 lb., piecings due to creeling—a common cause of bunches—are largely eliminated. For instance, the bobbin of an 8x4 frame carries 15 oz. of cotton; therefore one creeling gives thirteen to fifteen doffs.

"By eliminating unnecessary handling of the sliver from process to process," states the latest issue of the Saco-Lowell *Bulletin*, "we have been able to dispense with the use of twist entirely—right up to the point where the roving leaves the front rolls. The advantages of drafting an untwisted sliver are well known."

Discharge Resistor

To protect the insulation of d.-c. magnetic circuits against excessive discharge voltages when the circuits are opened, the Type CR9196 Thyrite discharge resistor, has been developed by General Electric Co., Schenectady, N. Y. The resistor is composed of Thyrite, an inorganic, non-porous, ceramic material, which, although it conducts about sixteen times more current each time voltage is doubled, is practically on insulator at line voltages. The new unit is said to reduce continuous watt loss to approximately 2% of that for equivalent permanently connected fixed resistors.

Optical Instruments for Textile Use

Two new instruments which have a number of applications in the textile industry have been announced by Bausch & Lomb Optical Co., Rochester, N. Y. One of the instruments, a small Littrow quartz spectrograph, can be employed for detecting and identifying the weighting materials in silk fabrics, metals in other fabrics, amount of dissolved solids in water, etc. The other instrument, a density comparator, is designed for rapid and accurate spectrographic analysis, and can be used as an accessory to any spectrograph.

The new spectrograph is simple in design, sturdily built, and easily portable. The range covered is from 2100 A to 7000 A, and the linear dispersion between these limits is approximately 150 mm. The length of the individual spectrum lines on the photographic plate is 3 mm. This entire range is covered in a single spectrogram, hence no adjustments of lens or prism are required as in larger instruments of the Littrow type. This permits rigidity and permanence of adjustment, since the optical system has no movable parts.

The density comparator consists of a projection system, a photo tube for reception, a voltage regulator, and a sensitive galvanometer mounted on a Julius Suspension. The results of measurements of the intensities of spectrum lines are read directly from a scale.

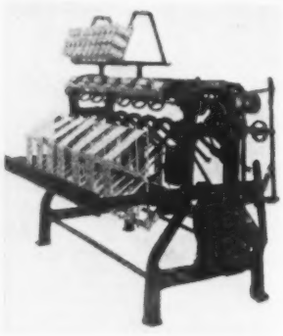
Portable Blower

The Ideal Commutator Dresser Co., Sycamore, Ill., announces an addition to its line of portable cleaners, known as the

Jumbo model. Advantages claimed for the new cleaner include: attachment to permit spraying of paint, oil, insecticides, etc.; sufficient power to blow or vacuum a 275-m.p.h. blast of air; 2½ in. fan diameter; 46.25 in. water column lift. The cleaner is powered with a 1-hp. General Electric motor.

Simplified Winder

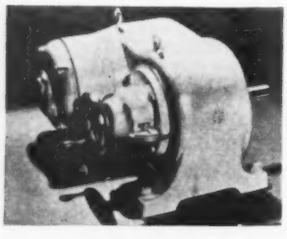
Fletcher Works, Inc., 202 Glenwood Ave., Philadelphia, announces a new winder for silk and rayon, simple in design and construction, known as the Simplex. Advantages claimed for the machine include the following: all mechanism self-contained and located at one end of machine; oil-retaining bearings throughout; cork-covered friction rolls to prevent slippage and insure maximum take-up



bobbin speed; rigidly secured swift-hangers to retain alignment; accurately cut traverse cams and rigid traverse connections to provide steady traverse motion essential to uniform bobbins; gears to produce variable traverse feeds; thumb screw to permit setting of porcelain guides with respect to bobbin traverse. Winder is available with belt or individual motor drive, and two of the machines may be combined and powered with either drive.

Variable-Speed Motor

A new variable-speed motor is announced by U. S. Electrical Mfg. Co., Los Angeles, Calif. The unit consists of a simple squirrel-cage, asbestos-protected motor, built integral with variable-speed transmission and gears, and so designed that the operator, by a mere turn of a wheel, can command any speed he desires. To change from one speed to another, the handwheel, upon being turned, actuates a traveling hub and lever arms which vary the distance between the two sides of driver disks. Vari-disks expand and contract, transmitting power through a Vari-belt to the take-off shaft. A calibrated helical spring constantly keeps the pulley connections in proper contact with the Varibelt. Rotor speed is said to be constant, and power flow even at all speeds.



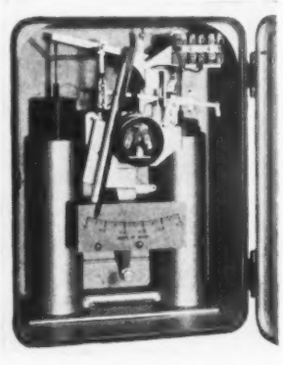
Drying Agent

A new drying agent or desiccant, known as Drierite, has recently been introduced to the textile industry by W. A. Hammond, Yellow Springs, Ohio. This material, which consists of practically pure anhydrous calcium sulphate, was first produced commercially early this spring, and already has found application in a number of industries. The first reported use in the textile industry is as a desiccating agent in vaults for storing raw silk and woven fabrics. To remove the moisture from such vaults and thus minimize the danger of mildew forming on the silk, from 10 to 12 lb. of the desiccant is required to 1,000 cu.ft. of air.

Drierite is said to be equally suitable for drying solids, liquids, and gases. Among the uses recommended for it are in solvent recovery, the production of anhydrous liquids, the drying of industrial gases, and in air conditioning. After exhaustion through use or exposure to moisture in any way, the material can be regenerated by heating it from 1 to 2 hr. at 235 to 250°C. Although desiccants have not been employed to any large extent in the textile industry in the past, it is believed that there are a number of applications in which this new product could be used.

Control Trip for Suspended Fuel

To guard against exploding mixtures of suspended fuel and air when lighting off boilers fired with pulverized coal, gas, or oil, Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio, has developed a control trip which withholds fuel feed until the boiler is thoroughly purged. The mechanism consists essen-



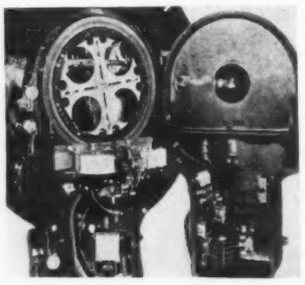
tially of two oil-sealed bells suspended from a beam designed to measure airflow through the boiler. A draft connection from the bells to the boiler furnace provides for the use of draft loss as a measurement of airflow. An indicating pointer, which may be used for calibrating and checking, is designed to operate the snap-acting contactor connected to the airflow mechanism. The contactor, once at the closed position, remains there until the airflow value approaches zero, thereby permitting operation of the unit throughout control range without tripping out the fuel feed.

Multi-Flame Blowpipe

An improved hand blowpipe, known as the Multi-flame Lindewelding head has been announced recently by Linde Air Products Co., 30 East 42nd St., New York. The head consists of a special chromium-plated tip and a stem for use with certain standard blowpipes. An innovation is the tip designed to give three flames: a main welding flame and two smaller auxiliary flames, the latter positioned so as to preheat both edges of the v ahead of the point of welding. The multi-flame head is designed for making rolling pipe welds but is not recommended for bell-hole or position tie-in welds.

Recording Scale

In order to eliminate the hazard of human error in reading, remembering, and recording weights from a scale or balance dial, Toledo Scale Co., Toledo, Ohio, has developed the Printweigh, a device designed to de-



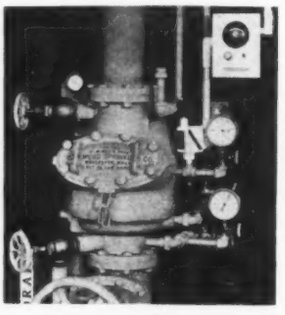
liver permanent, printed weight-records.

The apparatus is electrically controlled and can be used with any Toledo automatic dial scale. The unprinted ticket and inked ribbon are located between a squeeze platten and an aluminum alloy disk on which is a row of raised figures. When the control button is touched, the back platten and squeeze platten come together and print the weight on the ticket, the entire operation requiring less than 1/10 sec.

From one to four copies of a weight may be recorded simultaneously on single tickets of any length, or on continuous strips similar to stock ticker tape. Also, it is possible to print individual weights on tickets and, at the same time, record all weights for totaling on a strip inside the cabinet.

Sprinkler-System Supervisor

In order to lessen the hazard of freeze-ups in dry-pipe sprinkler systems, Rockwood Sprinkler Co., Worcester, Mass., has placed on the market an automatic Air Pressure Supervisor. The device consists of an air-pressure switch, which may be installed on any dry-pipe sprinkler valve and wired to a supervisory panel, generally located in the office of the plant superintendent.



When air pressure drops to 5 lb. above the point at which water will enter the sprinkler system, a vibrating bell and glow lamp on the supervisory panel begin to operate. Under ordinary conditions, this allows a margin of safety of several hours in which to restore normal pressure. Bell may be silenced by throwing three-way switch, leaving light to glow until pressure is restored. Bell rings again when pressure is normal. Both light and bell are shut off by again throwing switch, which leaves panel ready for next low-pressure alarm.

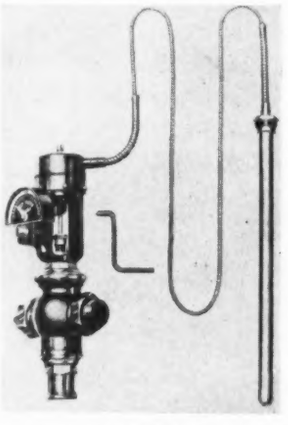
Improved Thrustor

General Electric Co., Schenectady, N. Y. announces several improvements to the Thrustor. These improvements, which are designed to produce a smooth straight-line thrust through a definite length of stroke, are as follows: stationary impeller housing of centrifugal pump; rigid, ball-bearinged shaft connecting impeller with inclosed, protected motor; tilting to 45° from vertical permitted; continuous operation with piston in stalled position.

Dial Temperature Control

To facilitate settings for control of processing temperatures, Fulton Sylphon Co., Knoxville, Tenn., has developed a self-contained temperature regulator, equipped with graduated dial and pointer, which outwardly resembles a radio control. The chief advantage claimed is that an operator can quickly and accurately "dial" any desired temperature through a range of 100° F.

The regulator is adjusted by means of a removable crank,

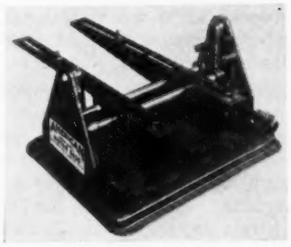


one turn of which causes a change of 10° F. To insure tamper-proof setting, a headlock screw, operated only by a special wrench incorporated in the crank, is provided. The thermal bulb is available in a variety of types suitable for various heat-control operations. The regulator operates on the vapor-expansion principle, and the motor element consists of the all-metal seamless Sylphon bellows.

Motor-Belt Tension

A motor-belt tension, known as the American tension-control motor base, has been developed by American Pulley Co., 4210 Wissachickon Ave., Phila-

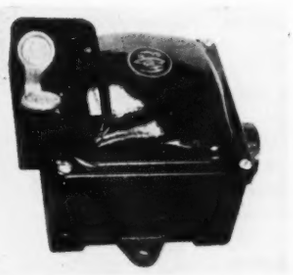
AND PROCESSES



delphia. Reaction torque (that force which tends to rotate a motor frame in the direction opposite that of the motor pulley) is said to be harnessed and utilized by suspending the motor in a cradle to permit rotation through a limited range. The new base is designed to produce automatically a belt tension always in exact relation to load fluctuation, and thus to bring about power savings and prolong the life of belts and bearings. The base, made of pressed steel, may be mounted on floor, wall or ceiling at any angle throughout 360°.

Double-Unit Pushbutton

Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland, Ohio, announces a new pushbutton consisting of two Type J units mounted in a dust-tight vapor-proof case, known as the Type J Double-Unit Pushbutton. It is designed to permit simultaneous operation of two separate circuits by a single lever, or provide mechanically interlocked individual operation of first one circuit and then the other. The pushbutton is of momentary contact style, the contacts returning to normal upon release of the operating lever. The case is threaded for a ¾-in. conduit connection, and there is a guard around the operating



lever which may be padlocked. The pushbutton is available in twelve different forms in order to provide for a large variety of circuits.

Totally Inclosed D-C Motors

A new line of d.-c. motors designed for use where dust, moisture, and other foreign matter are prevalent, has been announced by the General Electric Co., Schenectady, N. Y. Advantages cited for the new motors include a saving in space, greater output per pound of material, economy of operation, and interchangeability with open motors of corresponding ratings. The motors are totally inclosed and fan-cooled. A feature is the dual-ventilation system consisting of an internal fan which circulates warm air away from the coils against the frame and end shields, at which points an external fan directs cool air over the outside surfaces. Other features are water- tight conduit boxes and labyrinth seals at the cartridge-type bearing housings. Close clearances between the end shields and bearing housings and grease seals along the shaft are designed to keep foreign particles out of the motor. Motors are available in sizes, ½ to 200 hp.

New Publications

Official American Textile Directory, Textile World Division, McGraw-Hill Publishing Co., New York; 500 pp.; $4.00.

The 1934 edition of the "Official American Textile Directory" is available. It is compact and thoroughly revised to give up-to-date details regarding all textile mills.

The Mill Section lists geographically (by states and towns) the textile mills of the United States and Canada with such information for each as names of officers and operating officials, equipment, products and sales outlets. Classification of mills by branches of industry is clearly indicated by key letters in upper right hand corner of each entry. A classified yarn-trade section gives spinners of cotton, woolen, worsted, rayon, silk, linen and jute yarns classified according to kind of yarn. A classified bleaching, dyeing, printing and finishing section lists these plants according to process and product. There is also an alphabetical section, listing all mills by company or mill name.

The size and weight of this new edition adapts it equally well to easy use in the office or the field. The price is $4.00 and a club price is made for the volume in conjunction with subscription to TEXTILE WORLD.

Manual of Cost Accounting Principles for the Hosiery Industry, prepared by Ernst & Ernst, approved and issued by Hosiery Code Authority, New York; and a supplementary pamphlet—**Definition of Cost, and Principles and Methods of Determining Cost for the Hosiery Industry,** also published by Hosiery Code Authority.

The manual is an outline of cost principles and does not offer a complete accounting system in itself. The authors have properly felt that each mill should set up its own detailed procedure for accomplishing its accounting and statistical work to meet its individual requirements, using this manual only as a guide. The importance of such a manual in making product costs throughout the industry more comparable and in insuring that selling prices are established with an accurate knowledge of costs is obvious.

The keystone of the cost-estimating plan outlined is the budget principle, in accordance with which all expense is estimated in advance. Production is estimated on the basis of a uniform "normal capacity." The necessity for accurately estimating the cost of producing each style in the mill's line of hosiery is stressed throughout the manual.

Among the many topics discussed are yarn-weight tests, knitting waste, allowances for irregulars, selling expense, accounting for returns, and numerous other hosiery matters not considered in the average cost manual. The book concludes with a discussion of a simplified cost-finding procedure recommended for small mills.

The supplementary pamphlet contains the definition of cost under Article VIII of the Code of Fair Competition for the Hosiery Industry and General Hugh S. Johnson's Order No. 16-12 putting the definition in effect.

Commercial Raising of the Angora Wool Rabbit, by Bruno Schoemann, Chicago, Ill.; $1.00.

Mr. Schoemann, who is president of the American Angora Rabbit Breeders Association, has prepared an effective manual for those who breed Angora rabbits for their wool. The 20 chapters take up all necessary phases. The author points out that present demand is for coarser wool of 1½ to 2 inch staple, which is gained by crossing the pure Angora with the French type rabbit.

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Business Literature

Water Column Gages. Yarnall-Waring Co., Chestnut Hill, Philadelphia. Illustrated catalog covering improved line of Yarway boiler gages.

Transmission. Link-Belt Co., 910 S. Michigan Ave., Chicago. First issue of house organ, *Link-Belt News,* devoted to applications of conveying and power-transmitting machinery.

Photomicrographic Dark Rooms. Bausch & Lomb Optical Co., Rochester, N. Y. Suggested layouts and construction costs for photomicrographic dark rooms, 6x6 ft. and 9x12 ft.

Fire Extinguishers. Pyrene Mfg. Co., Newark, N. J. First issue of *Firefax* describing advantages of fighting fire with foam.

Hydraulic Packings. Chicago Belting Co., 113 N. Green St., Chicago. Illustrated leaflet showing photographic analysis of packing failures.

Iron. Republic Steel Corp., Youngstown, Ohio. Second edition of illustrated catalog, *The Path to Permanence,* showing application of Toncan iron products.

Alkali. Southern Alkali Corp., Corpus Christi, Texas. Booklet announcing opening of Southern Alkali Corp. plant at Corpus Christi, Tex., a joint subsidiary of Pittsburg Plate Glass Co. and American Cyanamid Co. Includes description of products.

Winding. Universal Winding Co., Boston. Bulletin announcing new Disc-Quil tension device.

Ball Bearings. Batam Ball Bearing Co., South Bend, Ind. Illustrated catalog describing straight roller, radial and thrust bearings. Includes useful data tables.

Insulation. Alfol Insulation Co., Inc., Chrysler Bldg., New York. Booklet describing 27 advantages claimed for Alfol insulation.

Welding. Lincoln Electric Co., Cleveland, Ohio. Illustrated booklet describing "shielded arc" welding.

Roller Bearings. Shafer Bearing Corp., W. Grand Ave., Chicago. Illustrated 49-page catalog containing data and specifications relative to roller bearings and self-aligning units. Also price list.

V-Flat Drives. Dayton Rubber Mfg. Co., Dayton, Ohio. Catalog containing data and specifications relative to V-Flat drives.

Piece-end Sewing Machines. Dinsmore Mfg. Co., Salem, Mass. Illustrated folder describing piece-end sewing machines for all classes of textile finishing.

Pressure Recording Instruments. Esterline - Angus Co., Indianapolis, Ind. Illustrated bulletin describing features of special pressure instruments. Also leaflet showing supplementary equipment.

Welding. Lincoln Electric Co., Cleveland, Ohio. Leaflet giving general specifications for belted or direct driven Types SA300, SA400 and SA600 shield arc welders.

BUSINESS NEWS

Kane Mfg. Co., Chicago, has added Joseph H. Young to the sales staff of its textile department. Mr. Young was previously with E. F. Houghton & Co. The Kane company specializes on starches, gums, soluble oils, sizes and finishes.

Glyco Products Co. announces that Edward Rosendahl, technical adviser, has been appointed vice-president and general manager as of Sept. 1. Sales and purchasing departments were located in Flat Iron Building, New York, on Oct. 1, while the laboratory and plant remain in present location in Brooklyn, N. Y.

Southern Alkali Corp. New York, is starting operation of its new $7,000,000 plant at Corpus Christi, Texas. This culminates a three-year building program and makes the Southern Alkali Corp., jointly owned by the Pittsburgh Plate Glass Co. and the American Cyanamid Co., the pioneer producer of alkali in the far South.

Charlotte (N. C.) Chemical Laboratory has been appointed sales agents in the South for Calgon, Inc., Pittsburgh, Pa., manufacturers of water - treatment products.

Robert R. Berry, Jr., Union, S. C., has been made South Carolina sales representative of the A. E. Staley Mfg. Co., Decatur, Ill., succeeding John Earl Jones, resigned.

Pioneer Atlanta Co., Atlanta, Ga., has been organized by Frank G. North and associates to manufacture loom harness and reeds. Directors chosen in August, from whom officers will be elected include Frank G. North, Emile LeClair, Walter W. Greer, Glee B. Thompson, Mark W. Mayes and Fred M. Suchke.

L. B. Holliday & Co., Ltd., Huddersfield, Eng., manufacturers of dyestuffs, have appointed J. S. Coombs, 65 High St., Boston, Mass., as agent for these products for this country.

E. F. Houghton & Co., Philadelphia, have appointed W. H. Brinkley as southern district sales manager, succeeding H. J. Waldron who has been granted an indefinite leave of absence. Mr. Brinkley, who was formerly western district salesmanager, will have headquarters at 1410 First National Bank Building, Charlotte, N. C.

THE PERSONAL PAGE

Hugo Hemmerich, general manager of Berkshire Hosiery Mills, Reading, Pa., has been elected president of Full-Fashioned Hosiery Association, Inc., Philadelphia.

Lord Barnby, head of Francis Willey & Co., Ltd., Bradford, Eng., has arrived in Canada, en route to the Orient as head of a British Industrial Mission to Japan and Manchukuo.

Dr. O. A. Hougen has been appointed director of laboratories of the U. S. Testing Co., Inc., in charge of the miscellaneous testing department. He succeeds the late Dr. Frank W. Edwards; since the latter's death the duties of the position have been performed by Dr. D. E. Douty, president of the company. Dr. Hougen has been associate professor of chemical engineering at the University of Wisconsin. For the last six years he has made extensive studies on the soaking and degumming of silk, the two-tone effect in hosiery and the various oils for soaking silk.

James F. Shumate, Anderson, S. C., and **Ralph Gossett,** Greenville, S. C., were elected members of the board of directors of the Gossett Mills Co., at the meeting of the stockholders, meeting in annual session at Anderson. The directors held their meeting immediately after that of the stockholders, at which time all of the officers of the mills were re-elected for another year.

Dr. R. F. Willows, director, and **T. A. Fairclough,** of Tootal, Broadhurst & Lee Co., Manchester, Eng., arrived in the United States early in October to look over the anti-crease situation (for which process they hold patents) and to consult with their licensees here.

F. S. Blanchard, Pacific Mills, New York, and formerly NRA deputy administrator for the textile section, has been appointed administration member without vote on the Code Authority of the Wholesale or Distributing Trade, succeeding **Dr. R. S. Alexander.** Mr. Blanchard will serve for six months.

Sam Kahn has resigned as vice-president of the Propper-McCallum Hosiery Co., New York. It is said that Mr. Kahn will soon organize his own business.

W. K. Loomis has been appointed credit manager for Wellington, Sears Co., New York, succeeding the late **Willard Haff.**

Barney Nusbaum, for 15 years with Nusbaum Knitters, Brooklyn, N. Y., and lately in charge of sales, has resigned and become associated with the sales and designing departments of Leonard Prince & Co., New York, which is now sales representative for Simon Ascher & Co.

J. E. England has been appointed manager of the hosiery divisions of Marshall Field & Co., in both the manufacturing and selling activities in New York, Chicago, Philadelphia, and Fieldale, Va. Mr. England will have his headquarters in Chicago.

Jed Sylbert, formerly labor manager for the National Dress Manufacturers Association, has been appointed executive director of the Metropolitan Knitted Textile Association of New York. The same body has named **Samuel Blumberg** as general counsel.

Hugo Hemmerich

Dr. O. A. Hougen

Calvin E. Sweet, vice-president in charge of manufacturing, B. B. & R. Knight Corp., Providence, R. I., has been made superintendent of the company's Royal, Arctic and Grant Mills. **Charles Haynes** will be his assistant.

Percy Hopple, at one time with Eldridge & Snyder, heads a new department at Bliss, Fabyan & Co., New York, to distribute blankets, comfortables, sheets, etc. That firm on Oct. 1 acquired the business and personnel of Mill Associates, Inc., New York.

W. C. Phillips is manager of the Sentinel Hosiery Mills, High Point, N. C., which were recently organized.

Lacy Maulden has become production manager of Cannon Mills, Kannapolis, N. C., succeeding **H. L. Ballard,** who resigned to accept the superintendency of Roxboro (N. C.) Cotton Mills.

J. A. Lichty, superintendent and vice-president of the Lake City Hosiery Mill, Marion, N. C., has removed to York, Pa., his old home, where he will be in the future. Mr. Lichty's successor has not been announced.

George David Simpkins, Sr., has resigned his connection with Sellers Mfg. Co., Saxapahaw, N. C., to become inside superintendent of the new Collins Cotton Mills, near Asheville, N. C.

G. W. Boys, formerly of the Farr Alpaca Co., Holyoke, Mass., has been appointed superintendent of China Grove (N. C.) Cotton Mills Co., Inc., succeeding **L. B. Loughlin,** recently killed in an automobile accident. He is the son of Robert W. Boys, now president and treasurer of Green River Mills, Tuxedo, N. C.

Thomas B. Spencer, who will have charge of the Hickory (N. C.) Spinning Co., unit of the Shuford Cotton Mills chain, has moved his family to Hickory.

Norman B. Hill has returned to Kinston, N. C., from Roseboro, N. C., and is again superintendent of the Caswell Mills, Inc., a position he has held once before.

H. H. Wood, superintendent of weaving for Oconee Textiles, Inc., Westminster, S. C., has taken on the additional duties of assistant plant superintendent.

John C. Adams, class of 1933, N. C. State College textile school, has been made superintendent of Hannah Pickett Mill No. 1, Rockingham, N. C. **P. H. Burrus, Jr.,** of the same class, is now with the technical division of Martha Mills, Thomaston, Ga.

A. A. Oliver, Kinston, N. C., has been appointed superintendent Chadwick-Hoskins Co. Mill No. 3, Charlotte, N. C., succeeding **J. C. Tipton,** who is now superintendent of Mill No. 4.

T. A. Graham, formerly superintendent of the cloth division of the Cabarrus Mills, Kannapolis, N. C., is now shipping clerk for the Loray, N. C., unit of the Manville-Jenckes Corp. He is also president of the Loray soft ball league.

Nelson N. Harte, superintendent of carding and spinning of the Martinsville (Va.) Cotton Mills, has become superintendent of the carding of Merrimack Mfg. Co., Huntsville, Ala.

C. L. Still is in charge of the Fort Mill, S. C., unit of the Springs Cotton Mills as assistant manager, following the resignation of **E. Lee Skipper** as manager of this unit, to become general manager of the unit at Lancaster, S. C.

John T. Wigington, graduate of Clemson Textile School, class of 1923, has accepted a position with the U. S. Department of Agriculture. He is now engaged in cotton spinning research at Clemson College, S. C.

W. A. Cunningham is now superintendent of the weaving division of the Dadeville, Ala., plant of the Alabama Mills Co.

Fuller Hinson is now superintendent of the weaving division of the Lola Mills, Inc., Stanley, N. C.

George D. Simpkins, formerly general superintendent of carding, spinning, twisting and spooling at the Dover Mills, Shelby, N. C., now holds a similar position with the Sellers Mfg. Co., Saxapahaw, N. C.

M. H. Bruce is now superintendent of the weaving division of the Steele's Mills,

Textile Calendar

Committee D-13, A.S.T.M., fall meeting, Hotel Pennsylvania, New York, Oct. 18 and 19, 1934.

American Association of Textile Chemists & Colorists, Annual Meeting, Hotel New Yorker, New York Dec. 7 and 8, 1934.

Federated Textile Industries, Inc., successor to Silk Association of America, Annual Dinner, Waldorf-Astoria Hotel, New York, Feb. 28, 1935.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Apr. 8 to 13, 1935.

American Society of Mechanical Engineers, Textile Division, meeting with Greenville Section, Greenville, S. C., Apr. 10, 1935.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, Pa., Apr. 22-26, 1935.

Cordova, N. C., having resigned a similar position with the Pepperell Mfg. Co., Lindale, Ga., plant, to return to a position he formerly held.

Robert Carr has been named assistant superintendent of the Gaffney (S. C.) Mfg. Co.

Thomas Sharples has taken the position of assistant superintendent at the Ford Mfg. Co., Waterford, N. Y.

E. T. Gamston is now superintendent of the carding and spinning divisions of the Adams-Swirles Cotton Mills, Macon, Ga.

E. T. Poole is now superintendent of the cloth division of the Hart Cotton Mills, Tarboro, N. C.

Obituary

Hal B. Mebane, Knoxville, Tenn., aged 59, president of the Cherokee Spinning Co., died Sept. 12. He and his late brother, Robert S. Mebane, were instrumental in building the three big units of the Republic Cotton Mills, Great Falls, S. C., of which he was at one time vice-president and treasurer.

Epsy W. Brawley, aged 67, one of the founders of the Dixie Cotton Mills and president of the company until a change in management, died recently at Mooresville, N. C.

Beecher M. Crouse, aged 67, president of Skenandoa Rayon Corp., Oneita Knitting Mills and Duofold Health Underwear Co., died Oct. 1, at Utica. N. Y.

Philip L. McMahon, aged 61, president, Charlotte Mfg. Co., and treasurer, Textile Mill Supply Co., Charlotte, N. C., died last month following a nervous breakdown.

Miss Jenn Winslow Coltrane, daughter of D. Branson Coltrane, 92-year-old textile executive of Concord, N. C., died Sept. 4, in New York. She was widely known throughout the textile South. She was the leader in sponsoring "The Voice of Cotton" pageant at Concord in 1931 and active in welfare work.

W. L. Lengel, president and general manager of the Lengel-Fencil Co., Anniston, Ala., and Reading, Pa., died recently.

William O. Devoll, aged 79, former treasurer of Potomska Mills Corp., New Bedford, died Sept. 16.

Arthur G. Schmidt, aged 51, president and treasurer of Kraemer Hosiery Co., Nazareth, Pa., died Sept. 23.

George H. Sutton, aged 86, partner in Sutton & Vande Water, New York, hosiery agents, and one of the deans of the business, died in Larchmont, N. Y., Sept. 16.

Walter F. Brooks, aged 75, for many years treasurer of the Royal Worcester (Mass.) Corset Co., died Sept. 11.

Frederick I. Dana, aged 70, textile technician with Thomas Phillips & Co., and with its successor, the Textile Finishing Machinery Co., died at Hoxie, R. I., on Sept. 30.

James Fetter, aged 53, superintendent of knitting at plant of Walter F. Meck, Schuylkill Haven, Pa., died recently.

Jay O. Ballard, aged 76, co-founder and president of Ballard Woolen Co., Malone, N. Y., died Sept. 25 at his home in Watertown, N. Y.

Archibald Ostrander, aged 67, vice-president and general manager of Robert Ablett & Co., owners of Anchor Knitting Mills, Whitesboro, N. Y., died late last month.

Otto A. Haenichen, aged 74, president of Haenichen Bros., silk manufacturers, Paterson, N. J., died suddenly Sept. 28.

George D. Forbes, aged 74, head of R. Forbes & Co. until it was acquired in 1928 by Dominion Woolens & Worsteds, Ltd., died Sept. 27 at his home in Hespeler, Ontario, Canada. He was an officer in 10 or more major industrial and banking concerns.

Paris Models Shown in Chicago

Chicago's growing reputation as a fashion center was strengthened recently when a group of 140 original Paris models for winter were shown by Miss Ellerbe Wood, well-known fashionist, at a trade gathering held under the auspices of the Chicago Wholesale Market Council. It is understood that plans for such showings twice annually are in process of development.

World's Looms Decrease

There was a decrease of 28,000 in the looms of the world between 1930 and 1933 according to a survey conducted by the International Federation of Master Cotton Spinners and Manufacturers Associations. The number on Dec. 31, 1933 was 3,129,969 compared with 3,158,778 on the same date in 1930. Looms in Europe showed a decline of 67,646, with Great Britain the chief sufferer with a decline of 104,935. Reduction in the United States was 85,322. These decreases, however, were largely offset by increases in Russia, Japan, China and India.

Improved Market for Machinery in Canada

There has been, in the last twelve months, a substantial improvement in the Canadian demand for American industrial machinery, according to Damon C. Woods, American Consul, Toronto, Canada, reporting to the Machinery and Agricultural Division, Dept. of Commerce. Prospects are declared to be good for sustained, if not improved, demand during the fall and winter season. In the twelve months ending with June, 1934, machinery imported into Canada totaled $15,985,518, of which $11,797,750 came from the United States and $2,394,929 from the United Kingdom.

The biggest single item in Canadian machinery imports is textile machinery, of which shipments valued at $2,613,674 came from the United States, against $1,413,581 in the previous annual period, a gain of 86%. Sewing and knitting machines formed a large part of the imports. At present cotton hosiery is quiet, full-fashioned silk hosiery is fairly active, the garment division is in seasonal decline, while the knit goods mills are busy. The best year since 1929 thus far, is the way one Toronto importer of textile machinery described the current year's business and outlook. An upturn in late September is expected, and this may stimulate further imports of machinery.

Leipzig Fair a Success

Exhibits at the Leipzig Trade Fair, Leipzig, Germany, which has just ended, totaled 4,696 displays, a 7% increase over the 1933 event; the fair attracted 4,000 foreign buyers, 10% more than last year; general visitors totaled nearly 100,000. The fair is approaching its 1,500th session.

Annual British Textile Show

Preliminary plans for the British Industries Textiles Exhibition, the textiles section of the British Industries Fair, which will be held Feb. 18 to Mar. 1, 1935, at White City, London, indicate that especial emphasis will be placed on quality in the displays. Lancashire's division will accent high-grade cottons and the best rayon fabrics, while the Scottish and Yorkshire manufacturers plan equally important showings of woolens and worsteds. Typical of the tone will be a promenade near the fashion theater in the women's section, which will be called "Quality Street."

Canadian Industry Under Investigation

The Canadian textile industry will be investigated by the Stevens Parliamentary Commission, but not so thoroughly as chain and department stores. Auditors will not be placed in the textile plants, but information will be gathered by questionnaire. The first meeting of the Commission will be held late in October, and if a report is to be ready for Parliament, it will be impossible to make any detailed probe. The textile industry has been a target since the textile tariffs were increased in 1930 and 1931.

Clemson Shows 33% Gain

Clemson Textile School, Clemson College, S. C., has opened with a 33% increase in enrollment over last year, giving it the largest enrollment since organization in 1898. It now has 267 students.

Textile Evening High Starts

The Textile Evening High School, New York City, began its fall season Sept. 17 with free courses in all branches of the textile field, including cloth construction, garment construction and design dressmaking, millinery, as well as art, technical and academic subjects.

Contemporary Industrial Art To Be Shown

A comprehensive display of contemporary industrial art including six complete interiors and various textile, furniture and other showings, will be held at the Metropolitan Museum of Art, New York, during November and December.

TEXTILE WORLD'S

Cotton Digest

FOR years we have been impressed with the willingness of a large number of cotton manufacturers to give heavily of their time and effort to cooperative activities represented by the Cotton-Textile Institute, the two major associations, and the State associations. This spirit was demonstrated again during the strike. Many men gave all or a large part of their time at headquarters offices in order to help in the proper presentation of the industry's viewpoint. The regular staffs were overworked as it was; without this additional help, their burden would have been intolerable.

Such an attitude on the part of manufacturers, particularly when their own jobs are more demanding than ever before, is one of the best assets an industry can have.—*Editor.*

Strike Aftermath

Following the Winant report, and the order of the United Textile Workers terminating the strike, those workers who were still out returned en masse, demanding their old jobs, reports our southern editor. Instead of wholesale re-opening of closed plants, as anticipated, relatively few made any effort to start idle machinery. Many mills which were never closed completely during the strike, hung out signs reading, "No help wanted."

At first the unionists were amazed—then indignant. Their leaders hurled charges of "discrimination." Mill officials denied these charges and cited the following reasons for not re-hiring certain workers:

1. Among the strikers, both union and non-union, are many undesirable individuals who took part in acts of violence. None of these law-breakers will be re-hired.
2. During the strike, in an effort to keep the mills running, many vacant jobs were filled with spare-hands and unemployed workers. These people will *not* be replaced with "disloyal" workers.
3. A considerable number of mills are still short of orders and are temporarily running only one shift. It is natural that those workers who struck would find it difficult to get re-employment at once.

During the last few days many mills have reopened; those still closed are expected to resume soon. The South has quieted down and production is returning to normal.

Looking back over the strike, it is evident that public sentiment condemned the ruthless tactics of the highly publicized "flying squadrons." So disgusted became the public, in fact, that union leaders in many localities found it imperative to abandon the use of motor caravans and portable pickets. Northern industrialists are said to be favorably impressed with the handling of the emergency by southern governors.

Observers prophesy that there may develop a *southern* union led by southern men as the present union movement is losing ground. Regardless of what the future outcome in this respect may be, the recent conflict has left scars which cannot be obliterated quickly, concludes our southern editor.

Relatively little difficulty was encountered in New England in settling down after the strike, although lack of any large volume of business kept operations at about the same level as prevailed prior to the walkout, reports our New England editor. In New Bedford, for example, Grinnell and Pierce Bros. did not reopen, but these plants had been closed because of lack of business before the strike was called. Other plants in the city were back to normal and the action of a number of manufacturers in making pay advances to the workers helped to ease matters.

In Fall River, American Printing and Barnard had some difficulty the first week, but these controversies were at least tentatively settled and workers in the various other plants were added as rapidly as conditions warranted. Mills in other sections quietly resumed operations and there was no evidence of units being kept closed as a disciplinary gesture.

Generally speaking, New England has been fortunate in that, with a few exceptions, the strike caused little bitterness between the individual mills and their workers.

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Market Situation

A psychological stiffening of the cloth market took place during the early part of September as strike conditions attached premiums to an increasing number of gray goods, and physical limitations and nervous inhibitions restricted the volume of business. After a period of doubt, 38½ in., 64x60, 5.35 print cloth hardened to 7¾c. for quick delivery. Toward the latter part of the month in light trading, prices began to ease and the construction dropped to 7½c. and then to 7⅛c. Market closed steadier.

The cotton yarn market, during the early part of September, had more yarn-users running than yarn-producers, particularly after Gaston county, a center of combed yarn production, was closed down 100%. Prices however were heavy and the month closed slow.

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Bankhead Act Will Not Be Suspended

The Bankhead Cotton Production Control Act will not be suspended but "certain types of details" will be speeded up, it was unanimously decided by Secretary of Agriculture Henry A. Wallace and a group of southern congressional leaders at a conference in Washington Sept. 22. Suggestion was heard that a referendum be taken among Southern cotton farmers in December to determine their feeling toward the bill.

Previous to the conference, Senator John A. Bankhead, author of the act, urged elimination of all restrictions as to individual allotments covering cotton harvested this year, citing the following reasons for his request:

1. Less than the authorized 10,400,000 bales will be harvested.
2. Delay in issuing tax exemption certificates to producers.
3. Elimination of tax on cotton in excess of allotments would not involve continuance of act.
4. Many small farmers will take loss as bill stands.
5. Tax exemption certificates could be purchased for 4c. lb. from those having short crop.

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Hearing to Supplement Converting Code

A public hearing on proposed modification of the supplementary code for the cotton converting industry, a division of the cotton textile industry, was held in Washington Sept. 28.

One provision would authorize setting up three new divisions to include tickings, bleached goods, and cotton linings for all purposes not otherwise provided. Other changes largely concerned discounts and terms of sale applicable to the proposed new division.

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NRA Rules Bonus Is Part of Wage

Any "bonus" received by a cotton textile worker must be regarded as part of his wage, according to a recent NRA ruling. The ruling calls for the week immediately prior to July 17, 1933 to be used in determining "the *total* compensation the employee received that week, or would have received that week had he worked the full number of hours customarily worked in said mill."

Cone Adopts Retirement Plan

The Cone Export and Commission Co., with main offices in Greensboro, N. C., has adopted a retirement and insurance program providing an assured income commencing at age 65 for men and age 60 for women, with income based on salary and length of service with the company. In general, the plan will provide a retirement income equal to 1½% of the employee's salary, in accordance with salary classifications, multiplied by the number of years of service. It also provides insurance protection throughout active service. The plan is cooperative, with employees and the company jointly sharing its cost. The Metropolitan Life Insurance Co. administers the plan.

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Mercerizers Move Office to New York

The Mercerizers Association of America removed its offices from Washington to 468 Fourth Ave., New York on Sept. 27. The Washington headquarters had been maintained for the last five years. Dean Hill, executive director, said that the interests of users of mercerized yarn could best be served by maintaining headquarters in New York. Offices of the Durene Association of America will also be located at 468 Fourth Ave.

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August Operations

Statistics of particular interest to cotton manufacturers, showing August operations and the raw material situation, were:

Spindle activity	76.8% capacity or 5,752,899,618 spindle hours.
Cotton consumed	420,949 bales
Cotton imported for consumption	10,682 bales
Cotton exported (excluding linters)	267,562 bales
Cotton ginned prior Sept. 1.	1,397,886 bales

July figures for comparison:

Spindle activity	74.3% capacity or 5,151,979,342 spindle hours.
Cotton consumed	359,372 bales
Cotton imported for consumption	10,893 bales
Cotton exported (excluding linters)	305,820 bales
Cotton ginned prior Aug. 16	353,888 bales

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Standard Denim List

Upon behalf of its Denim Group of manufacturers and selling agents, W. Ray Bell, president of the Association of Cotton Textile Merchants of New York, has announced official adoption of a card basis for the determination of proper differentials on various weights of 28-inch denims when a quotation on the market standard of 2.20 weight is given. The list covers corresponding prices applicable to a price range from 10 to 20c. by ¼c. on the base fabric (2.20 weight) and for the following weights: 3.50, 3.00, 2.60 D. & T., 2.45, 2.40 D. & T., 2.34 D. & T., 8 oz. and 9 oz. R. O. M.

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Cotton Industry Briefs

Jefferson (Ga.) Mills, with plants at Crawford and Royston, Ga., announce appointment of Southeastern Cottons, Inc., as sole selling agent, effective as of Sept. 6.

The Cotton-Textile Institute recently issued the fall home furnishings number of *Cotton Flashes*, brimful of suggestions as to methods of keeping cottons moving through the fall months.

Fred S. Wetzell, cotton yarns, is located in new offices in Empire State Building, 350 Fifth Ave., New York.

Master Tuft Candlewick Co., Chattanooga, Tenn., has been incorporated by J. M. Gladish, Chattanooga machinery designer, and R. B. Cannon, Dalton, Ga., candlewick manufacturer. Mr. Gladish has patented a special machine designed to tuft rayon, organdie, scrim, silk and other fabrics unsatisfactory to tuft by hand. The company will specialize in draperies, table covers, bridge sets, etc. Operations were scheduled to begin early this month, employing from 50 to 75 persons.

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Cotton Mill News

Enterprise (Ala.) Cotton Mills owned by the Federal Reserve Bank of Atlanta as result of mortgage foreclosure, has become involved in a levy of $20,000 in processing taxes and H. L. Gary was recently appointed receiver.

Crown Cotton Mills, Montgomery, Ala., recently organized to take over former **Cloverdale Mills, Inc.,** have work under way on alterations and improvements in mill, and propose to begin operations at early date. H. B. McDowell, Prattville, Ala., is vice-president and general manager of new company.

Ponemah Mills, Taftville, Conn., is considering removal possibly to New Bedford, according to inference from the fact that officials have been looking over mill properties there and in Fall River. Ponemah operates 93,248 ring and 67,200 mule spindles and 3,763 looms.

Amoskeag Co., Manchester, N. H., reported net income of $507,783 for the year ended June 30, 1934, against $524,887 for preceding year. Net balance however was $12,512 against previous deficit of $15,474.

Cross Cotton Mills, Marion, N. C., has been enlarged at a cost of $125,000 to nearly double former capacity.

Patricia Unit of the **Neisler Mills, Inc.,** Kings Mountain, N. C., has installed 48 new jacquard and dobby looms.

Mortimer (N. C.) Cotton Mill, formerly the United Mills Co., was scheduled to resume operations Oct. 1, under new management. These mills have been closed since 1929 when merged with Hickory Spinning Co. Superintendent J. E. Armstrong is having the machinery reconditioned for the manufacture of hosiery yarn. The property is under lease to a group of Gastonia textile executives.

Eagle Mills, Woonsocket, R. I., was placed in hands of David Bachand, Jr., and Dudley M. Baker as receivers on Sept. 20. Mr. Bachand is superintendent. The plant operates 400 looms on fancy cotton dress goods.

Woodside Cotton Mills Co., Greenville, S. C., is arranging for reorganization under provisions of new Federal bankruptcy act, and has made application to local Federal Court. Formal hearing will be held in October.

Washington Cotton Mills, Inc., Chattanooga, Tenn., have been granted a charter of incorporation by Secretary of State Ernest N. Haston. The authorized capital stock is $100,000. Incorporators: Byron M. Fogo, Joseph Frassrand and W. B. Hill.

Eureka Cotton Mills, Englewood, Tenn., creditors met in Federal Court at Knoxville Oct. 10 to decide on a plan of reorganization. It involves the borrowing of $60 000 from RFC, for which application has been made.

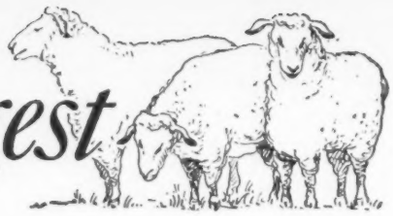
Texas Textile Mills, Inc., Dallas, Tex., has purchased a new super-sanforizing range.

Goodyear Cotton Co., Ltd., St. Hyacinthe, Que., has installed new Saco-Lowell speeder frames, a Butterworth & Dickenson slasher, and 20 Draper looms, 60 inches wide for producing osnaburgs.

Canada Mill of Canadian Cottons, Ltd., Cornwall, Ont., has begun work on new addition to mill, for which general contract recently was awarded to Anglin-Norcross, Ltd., 892 Sherbrooke St. West, Montreal, Que. Work will include extensions in steam powerhouse and installation of new equipment. Cost over $85,000, with machinery.

TEXTILE WORLD'S

Wool Digest



THE National Association of Wool Manufacturers deserves credit for its action looking toward the re-examination and revision of the Wool Textile Code. As we stated in these columns last month, such action should be a part of the program of every industry.

The wool manufacturers' association plans thorough revision with a view to eliminating provisions of doubtful value, retaining of course the good features. Consequently it advised all sub-code authorities to re-examine rules of practice. It also appointed a policy committee to aid in preparing promptly a comprehensive plan for revision of the code.

It is obvious that, in view of the hasty preparation of codes under pressure, no code could even approach perfection. It is high time that all be studied and improved.—*Editor.*

The Strike Aftermath

After a flare-up which threatened for a time to bring greater violence after the strike than during its active phase, the woolen and worsted industry was fairly well settled down at time of going to press. With the strike ineffective in such centers as Lawrence, the cut in production was evidently not sufficient to give any life to the market and a number of mills found it impossible to reopen with anywhere near a full crew. This caused some grumbling on the part of labor, but it was alleged discrimination which caused most of the trouble.

The issues involved were brought to the surface at the Hamilton Woolen Co., Southbridge, Mass., where the worst rioting occurred. Prior to the strike, the employees were not unionized, but after the management closed the mill as a result of a visit from a flying squadron, organizers signed up a goodly share of the workers. One of the rumors spread around was that none but union members would be re-employed. When the plant reopened the union charged that its members were being discriminated against. In effect the union tried to insist that no non-union workers be taken on; thus virtually demanding a closed shop. The management, of course, took the position that non-union members should not be discriminated against either and accord was finally reached on that basis. Similar situations arose at Rockville, Conn., and other centers.

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New Fabric Prices Show 12½% Reduction

Such wool goods mills as were closed by the textile strike in September were handicapped more in production of spring samples than in general production, for demand remained light and a number of mills closed voluntarily to avoid accumulating unsold stocks. Only in the women's wear field, and here only in cheap goods, has there been any talk of scarcity.

Spring lines are being shown fairly generally through the men's wear field. Staples and semi-staples were the first to come on the market and fancies will be strung along as style developments become clearer. There is talk of a trend toward sporty fabrics but as such lines are often highly speculative mills are taking them up slowly.

Men's wear spring prices available at time of going to press indicate an average reduction of 12½% from last season. The popular numbers are around $1.50 or lower and only exceptional numbers are over $2.00. It is apparent that the early openers recognized that something must be done to stimulate distribution as the past summer has been particularly dull in most manufacturing circles. Even on the basis named, clothiers are moving cautiously and a return of confidence is needed to be added to the situation to permit a better flow of merchandise. Clothiers seem to have an adequate supply of fabric and garments to satisfy their present turnover. The hope for benefit through strike-curtailed supplies has not generally materialized.

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Foresee Chance for Rise in Fancies

The men's clothing trade on which success of fabric mills largely depends is feeling its way toward what some believe will be a definite change in style. These prophets foresee wider adaptation of sports clothes for general use and with this, of course, a new birth for fancy fabrics. From college centers come reports that bright, colorful, patterned clothing has the preference, and colorful accessories, such as mufflers and gloves, are being prepared for wear with dressy coats.

Popular prices range from $18.50 through $25.00, with college centers reporting $35 to $40 as active garments. The chain clothiers give no indication of much change in prices, although several in New York have announced reductions of $1 to $2.50. Clothiers who specialize on summer lines have their models for 1935 in readiness and at least one large house has made no change in price from last season. Goodall Co. has reduced suggested retail price on Palm Beach suits to $15.75 for 1935, against $18.50 last summer, a 14% drop.

Women's wear styles for 1935 are believed trending toward luxury and bewildering variety. It is difficult to see how the lines prepared for the most expensive trade can be translated into volume sellers at popular prices.

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Wool Dealers Hope for Growing Confidence

Large factors in the wool market are optimistic in the view that the wool industry is at the point of moving into a better era when the respective rights and privileges of employer and employee shall have been fairly evaluated. Meanwhile, they await the building up of confidence on this basis.

The total amount of wool in the country is not much larger than a year ago, but owing to the abnormally small purchasing by manufacturers for year to date, unsold wool in the hands of dealers is comparatively large. Heavy mill consumption and consequently large buying in 1933 resulted in the carryover at the beginning of 1934 being less than for many previous years. Total wool supplies are not excessive from the standpoint of a normal consumption.

Wool prices throughout September were entirely nominal and in strong contrast to a year ago when the market was rising steadily on continuous purchasing by manufacturers. Territory wools opened October about 10% lower and fleece wools 16% lower than the monthly averages for September, 1933.

The trade has been watching wool prices in London and Australia. The London September sales showed declines of 5 to 20% from the close of the July series. The tone of the recent series was however much improved.

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Tops Are Easier

During September prices of wool tops eased gradually with trading more active toward the close of the month than at the beginning. Spot price on the standard certificated top declined from 83.0c. on Aug. 31 to 81c. to Oct. 1. This reduction was paralleled by the change in contracts with December contract moving from 79.1 to 76.0 in the same period. Foreign top markets were also described as easier.

Hearing on Style Registration Proposal

The proposal to establish by code amendment a style registration bureau for the wool textile industry was discussed Sept. 20 at a public hearing conducted by Assistant Deputy Administrator A. Henry Thurston, at Washington. The proposal was submitted by Edward Wilkinson, New York, representing the Code Authority and the National Association of Wool Manufacturers. He stressed the need for such protection from style piracy in the industry. No witness appeared to oppose the proposal; and Deputy Thurston stated the only protest he had received was from the Wyandotte Worsted Co., New York. The proposal, if approved, will be Article XV of the rules of practice and merchandising of the piece goods division.

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Rag Market Holds Steady

The rag market was steady to firm through September. Mills are believed to hold scant stocks and with the ascendency of carded woolens, it is believed considerable supplies will be called for in the next month or so. Trading during September was however dull. Fine white sweater clips moved from 55c. to 60c.; tan polos from 28c. to 30c.; mixed softs were steady and light hoods at 17½c. were off ½c. New clips were stronger than old rags. Dealers expect that any increased cost to weavers due to the strike will be taken out of the goods by further use of shoddy.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40 hour shift, 5½ days per week:

Wool consumed:	August	July
Total clean equiv. (excluding carpet)	9,417,000	8,846,000
Carpet wool (grease)	7,030,000	5,810,000
Looms (50" wider)..	64.1%	67.0%
Carpet looms	45.5%	41.1%
Combs	46.8%	46.2%
Worsted spindles ...	32.7%	38.1%
Woolen spindles	92.3%	91.3%

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Committee Appointed to Propose Code Revision

Following action by the board of directors of the National Association of Wool Manufacturers aimed at planning code revision where experience has shown changes desirable, Arthur Besse, president, has appointed a policy committee as follows: Ronald W. Cordingly, Addison L. Green, Rowe B. Metcalf, Allen R. Mitchell, Jr., John E. Rousmaniere, and Abbot Stevens.

Committee on labeling legislation recently appointed follows: A. C. Bowman, T. T. Clark, F. W. Hobbs, W. S. Nutter and F. W. Tipper.

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Wool Industry Briefs

Leo Gottlieb, styler in Dept. 2 of American Woolen Co., New York, has resigned and opened an office on his own account at 51 Madison Ave. He was formerly part owner of Fairmont Worsted Mills and it is understood he has developed new mill connections.

At time of going to press, we can only report progress on the proposed joint promotion to be undertaken by the wool trade and by the manufacturers. Officials in both fields have been conferring to the end of devising suitable action following the report of Col. C. F. H. Johnson reported in our September issue.

The recent meeting of directors of the American Woolen Co. omitted action on the preferred stock dividend. It will be recalled that previously in 1934 two quarterly dividends of $1.25 had been paid, which were the first since April 15, 1927.

Part of the strike ramification was an effort to foment strike among the Lawrence (Mass.) wool sorters. The effort failed and no mills were reported short handed despite the strike vote of the National Wool Sorters' Association.

American Woolen Co. was awarded the CCC contract for 303,232 yd. of O.D. 10½ oz. shirting flannel at $1.07½ on Sept. 19. Six manufacturers bid, figures running up to $1.36¼.

During the first six months of 1934, it is stated, about 5,000,000 lb. of "carpet wool" was withdrawn from bond and a duty paid because of prospective use in other than carpet manufacture. The quantity is about 10% of the importations of the period. It suggests the vogue for tweeds which are made of coarser wools.

Among spring opening prices are noted the following: Samuel Hird's 612 at $1.40 base; Metcalf's 349 blue, $1.50; W. J. Dickey's 677, 11½ to 12 oz. flannel, $1.10 and $1.12½, and their 39 range, 12-13 oz. tweed, $1.10.

Wool textile exports from Japan in the first half of 1934 registered a gain of 130% over the corresponding period of last year, while the value of yarn exports showed an advance of 120%, according to report from American Commercial Attaché at Tokyo. Substantial increases were noted in Japanese shipments of wool textiles to British India, Sweden, Central America, and Peru, and larger exports of wool yarn were made to Turkey, Central America and Egypt. Japanese imports of wool textiles at the same time declined 30% while imports of wool yarn were 60% lower.

During the first six months of the present year, Canada was by far Great Britain's best customer in the woolen and worsted trade, according to British Trade and Navigation returns. In that period Canada imported from Britain 7,578,000 sq.yd. of woolen and worsted tissues. Britain's next best customer was British South Africa, which imported 4,725,000 sq.yd.; Argentine, 3,870,000; Irish Free State, 3,434,000; Denmark, 2,894,000; New Zealand, 2,214,000; United States, 2,155,000; China, 1,926,000; and the Netherlands, 1,665,000.

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Wool Mill News

Clover (S. C.) Mills are reported to be offering yarns spun from angora rabbit hair for use in hand knitting.

Botany Dryspinners Regd., Kincardine, Ont., are considering the establishment of another worsted spinning plant. The president is William Mitchell.

Dominion Woolens & Worsteds, Ltd., Peterboro, Ont., has completed extensive additions to its Auburn mill and installed much new equipment. A two-story extension, 100 x 73 ft., has been erected adjoining the weave shed. The parent company reports net loss for the fiscal year ended June 30, 1934, of $1,326, comparing with a net loss for the preceding fiscal year of $293,312. Shipments for the recent period were 27% over the former, and there was an operating profit of $241,786.

Canso, Nova Scotia.—A community textile plant has been established here and four hand looms have been installed. One was brought from Norway, two from the U. S. and one from Quebec province. A number of spinning wheels have also been installed. The plant was started by the extension department of St. Francis Xavier University, of Antigonish, to provide local families with garments and yarn at cost.

Regent Knitting Mills Ltd., St. Jerome, Que., have recently installed a complete woolen cloth weaving and finishing department. There was also recently added two sets of woolen cards and two 240-spindle mules.

Inglewood (Ontario, Canada) **Woolen Mills,** which have been closed for more than five years, are re-opening under the name of **Riverdale Woolen Mills.** Carpet yarns will be the principal product.

TEXTILE WORLD'S

Rayon Digest

WE'RE going to do the unusual this month: utilize this space for passing on some kind words about ourselves. Evidently, our Golden Anniversary Rayon Issue last month rang the bell with a lot of people. Here's a typical comment: "You people got out a darned good issue—and the 'darned' should be in italics. It was one of the best jobs of the kind I've ever seen."

We just couldn't let that gather dust in our files. Many thanks to all our friends who expressed similar sentiments. We can hardly wait for 1984 when we get out the Centennial Number.—*Editor.*

Labor Peace Aids Rayon Outlook

The end of September found the rayon industry, including yarn producers and fabric weavers, gradually digging itself out of the aftermath of the textile strike. To the yarn producers the termination of the strike was welcomed for two major reasons: First, it ended all talk as to a sympathetic walk-out being called in that division by the United Textile Workers; and second, it brightened the sales outlook by permitting resumption of activity throughout the weaving division. Reopening of weaving mills followed rapidly on the heels of the strike's conclusion, and on Sept. 27 it was estimated that more than 85% of the mills were operating. Agitation for a closed shop had revived in certain areas, but this was on a small scale.

Yarn producers were confident that normalization of the weaving division was just a matter of a short time, and indeed, certain yarn companies claimed that they had not suffered any great slump in yarn sales even while the strike was on.

Within the yarn industry, the strike was largely a matter of much smoke and no fire. There were repeated statements by the U.T.W. that the rayon workers would be called out, which did not make for a healthy psychology in the industry as a whole. The nearest approach to a strike was the vote taken by the Cleveland local of the U.T.W., through Rayon Workers Union No. 2096, among unionized workers at the plant of the Industrial Rayon Corp., on Sept. 12. Labor leaders claimed that these workers had voted 87% in favor of a strike. The company employs about 1,700 and officers of Industrial claimed that no more than 500 at the most would respond to a strike order. From a market point of view the most significant aspect of the Industrial situation was the statement credited to Hayden B. Kline, vice-president, that "due to business conditions we are exceedingly well prepared for a strike, having three months' supply of yarn on hand." Union leaders asserted that the strike vote was inspired partly by a desire to support the general strike and partly to local grievances.

The strike contagion was evident also at the Asheville, N. C., plant of the American Enka Co., where it was reported shortly before the general strike was settled, that a sympathetic walk-out would be called.

While figures as to exact status of weaving mills were not available, reports on Sept. 27 indicated a general resumption of business. In North Carolina, 90% of the mills had reopened and in South Carolina only one mill was completely closed. The only disturbance in New England was at New London, Conn., where one mill remained closed due to a union demand for a closed shop. This demand also was made in certain Pennsylvania districts which interrupted the task of resuming operations. Some rayon weaving mills were not in a hurry to reopen because they lacked orders, it was reported. Numerous units were operating on a partial staff basis.

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Industrial Offers Spun Dyed Yarns

One of the month's most interesting developments to the market was the news that the Industrial Rayon Corp. has introduced spun dyed yarns, these yarns having been dyed in the solution before the spinning process. The company withholds details, and it is understood that the innovation is still in the experimental stage. The new yarn at present is available only in two colors, pink and tea-rose, and it is understood the price will be 5c. over the cost of the natural yarn.

Efforts to introduce the dyestuff into the viscose solution prior to spinning have long teased the rayon chemists. Occasionally a degree of success is reported, but full commercial application of the method has not yet been reached. The Celanese Corp. of America was successful some time ago in developing a spun dyed black yarn of reliable fastness and it sells for 25c. per lb. over the natural yarn. One feature of this yarn is that it eliminates the use of viscose rayon for cross-dyeing with acetate yarns.

Weavers and knitters regard the Industrial development as of considerable potential significance.

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F.T.C. Hearings Resumed

The hearings by the Federal Trade Commission on charges that certain rayon yarn companies have engaged in monopolistic and price-fixing practices, were resumed Oct. 2 continuing through Oct 5. The sessions were held at 45 Broadway, New York. Leon H. Ryan, secretary of Delaware Rayon Co., the first witness, asserted that supply and demand were the only factors in determining his firm's prices.

Louis A. Wolin, vice-president of Industrial Rayon Corp., was the next major witness. He was called to testify by Edward L. Smith, counsel for the Commission, and incident to Mr. Wolin's examination, Mr. Smith introduced as evidence a letter Mr. Wolin wrote to which much significance was attached. Counsel for various rayon companies objected to certain questions put to Mr. Wolin, and it was then decided to suspend examination of the witness pending a ruling on procedure from the Commission at Washington. Up to Oct. 4 no reply had been received from the Commission and Mr. Wolin had not had an opportunity to explain the letter.

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Celanese Sold Up

The Celanese Corp. of America is completely sold up for the balance of the year, but shipments were temporarily interrupted due to the textile strike, according to a statement made by Dr. Camille Dreyfus, president of British and Canadian Celanese companies as well as head of the American unit. Dr. Dreyfus made the statement in Montreal, Canada, during a visit to the Canadian plants of the company.

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Rayons Important In Winter Styles

Paris styles for winter offer important possibilities for the rayon industry, according to late September reports from the Paris office of the DuPont Style Service. The market for formal rayon woven fabrics will be unusually promising, due to the emphasis on trains. The report states that "trains will be in full vogue this winter," and the designers showed these trained gowns in many

synthetics fabrics, including dull rayon satins and crepes. Rayon braid was widely used for trimming the new berets. Fabrics made of man-made yarns also were accented in coats, hip jackets and blouses, which were brilliant in effective color schemes.

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Rayon Employment Up 25%, Census Shows

Wage earner employment in the rayon and allied products industry increased approximately 25% between March, 1933, and September of the same year, according to figures made public Oct. 1, by the Bureau of the Census of the Department of Commerce, and based on data gathered in the Biennial Census of Manufactures taken in 1934. The bureau reports that in March, 1933, 37,472 wage earners were employed against 50,779 in the following September. Since the figures cover such divisions as transparent wrapping tissues and other branches not strictly textile, the total is somewhat higher than would be represented in the rayon industry itself.

Total output of rayon and allied products in 1933 was valued at $156,931,519 (f.o.b. factory prices), a rise of 18.3% over $132,632,416 which was the total value of products in 1931, the last previous census year. The total of wage-earners rose from 38,735 in 1931 to 44,306 in 1933, and the cost of materials increased from $36,180,858 in 1931 to $44,031,316 in 1933. Yarn output rose from 150,879,496 lb., value $112,282,407 in 1931 to 213,497,850 lb., value $129,-202,305 in 1933. The trend shown in production of the different deniers is somewhat contrary to general trade understanding, since it shows a decided drop in output of finer deniers.

Comparative yarn production and value figures follow:

Yarns Denier	1933	1931
Finer than 125	11,422,949 lb.	32,959,202 lb.
	$10,290,629	$30,525,206
125 to 150...	179,281,371 lb.	100,022,948 lb.
	$107,981,884	$70,725,448
Heavier than 150	22,793,530 lb.	17,897,346 lb.
	$10,929,792	$11,031,753

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1934 Exports Rising, May Set Record

A significant increase in rayon yarn exports from the United States during July was shown in rayon export figures made public by the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce. During July yarn exports totaled 344,295 lb., value, $151,277, this being far in excess of the quantity of woven rayon goods exported, and slightly greater than the latter in dollar value. Yarn exports for the first seven months of 1934 aggregate 1,328,-912 lb., value, $710,181.

While this still represents only a very small fraction of the rayon yarn business, the rapid rise focused the attention of producers once more on the ultimate prospects of the export trade. It was emphasized that if the yarn exports continued their present rate of increase, they would set a new high record for the year. Total July exports for all rayon divisions were $346,091, bringing the year's figure to date to $2,286,477.

In imports rayon waste as usual was the leader with 163,267 lb. worth $17,-962. The low total of rayon fabric imports—2,712 sq.yd. worth $2,393—was interesting as it tended to belie the reports that Japan was flooding this market with low-priced woven rayons.

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September Very Uneven, Producers Report

While rayon yarn sales during September were admittedly very uneven, with some firms far behind in volume and others enjoying a moderately good demand, an end-of-month inquiry indicated that on the whole the industry probably had fared better than expected. One major company reported that shipments for the first three weeks of September were ahead of August, this being, in the words of one executive, "a real surprise to ourselves." The same firm was accepting no more September business at that time and was writing a quantity of sizeable orders for October.

The paradox of this showing at a time when the strike had closed many rayon weaving mills was explained by the statement that, in the case of the specific company referred to, very few of its weaver-customers in the South had ceased operations.

However, this steady movement was far from general. At the end of September weavers were hesitant about October prospects and were buying on a strictly hand-to-mouth basis. Stocks of yarn in producers' hands have increased appreciably of late weeks; one large firm which operated through the first half of 1934 with a margin of about 2,000,000 lb., now reports its margin to be "somewhat less than 5,000,000"; it is understood that, in the case of other yarn companies the stock increase is much greater.

Demand for acetate yarn has held consistently firmer than that of viscose; however, a degree of underselling was reported in both divisions at the end of September. At the viscose end, interest centered on 150/40 bright, 100/40 dull and 300 bright.

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Japan's Yarn Exports Show Sharp Rise

Rayon yarn production in Japan increased 24.2% during the second quarter of 1934 as against the first quarter, according to reports made public by the Department of Commerce. The total for the second quarter, based on output of member firms of the Japanese Rayon Manufacturers' Association and unaffiliated companies, was 36,613,430 lb. Illustrative of the growing international significance of the Japanese rayon yarn industry is the export total for the first half of 1934, which aggregated 11,433,-882 lb., valued at $3,523,255, against 2,682,844 lb., valued at $676,000 in the 1933 period.

Japan's exports of rayon cloth during the second quarter of 1934 totaled 86,-116,495 sq.yd., valued at $8,486,000 and represented the largest trade for any quarter-year period in the history of the industry, the statistics indicated. The enlarged exports are attributed largely to increased demand in India, Dutch East Indies, Latin America, Straits Settlements and other countries.

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Rayon Mill News

Tubize Chatillon Corp., New York, N. Y., has resumed operations in knitting division at mill at Hopewell, Va., following curtailment since last June, and will give employment to about 200 persons. This quota will be increased at early date.

Industrial Rayon Corp., Cleveland, Ohio, is said to be concluding arrangements for acquisition of property at Elkton, Md., for proposed new mill in Eastern district, to consist of several large units, designed to give employment to about 1,800 persons. Proposed plant is reported to cost over $600,000, with machinery. Elkton Chamber of Commerce is active in project. Company has also resumed negotiations with city officials at Cleveland for new sewage system to permit additions to main mill at that place, comprising new group of multi-story buildings to cost in excess of $1 500,000, with equipment. Christian, Schwarzenberg & Gaede, 1836 Euclid Ave., Cleveland, are architects for last noted project.

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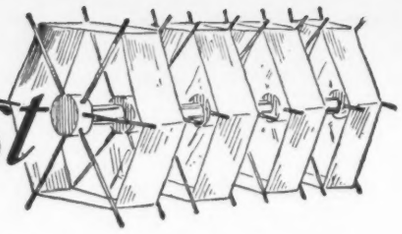
TEXTILE WORLD'S

Silk Digest



THE typhoon in Japan gave raw silk an upturn at about the same time as the earthquake did about a decade ago. Fortunately reports say the damage was not great. It has been suggested that perhaps it was only the Silk Parade passing over Nippon!

In any event the Parade created a real stir in the retail field here. Apparently retailers had just been looking for something of the kind, and they went for it strong.

One more successful merchandising push chalked up to the credit of the textile industry!—*Editor.*

Broadsilk Mills Slowly Reopening

Ten days after the conclusion of the textile strike which had closed between 25 and 40% of the nation's broadsilk mills, these mills were still in the gradual process of rehiring and reopening. Scattered reports reaching New York on Sept. 26 indicated that most of the larger companies affected had resumed operations on the peace terms set forth by President Roosevelt's Board of Textile Inquiry. During the period of rehiring charges were made by Francis J. Gorman, chairman of the United Textile Workers strike committee, that certain silk mills were discriminating against union members in selecting personnel for resumption of operations, which charges were denied by the manufacturers.

The strike had affected to a varying degree silk mills in all the principle districts such as New England, New Jersey and Pennsylvania. While no figures as to the total financial cost of the strike to the industry were available, a gauge of the aggregate loss presents itself in the estimate made by several leaders that the loss to the Paterson, N. J., district alone, in wages, waste materials and non-production would reach $4,000,000. By Sept. 26, approximately 70% of the silk mills in the Paterson district had reopened. Contending that contract wage scales were no longer valid because workers had struck in violation of their contract, certain smaller manufacturers in that area attempted to reemploy workers at lower rates than prevailed before the walk-out; this move impeded the rehiring process with the result that some 800 workers were still idle. The effort to establish lower wage scales, while conceded to be sound insofar as contract violation was concerned, was disapproved by most Paterson mills and the majority rehired at the contract wage scale. Litigation which had been started by manufacturers to compel labor union compliance with the contracts was still pending when the strike ended, and it was understood that no further action would be taken in that direction.

The last weeks of the strike were replete with activity. The Silk Code Authority, through Peter Van Horn, chairman, on Sept. 17 wired Deputy Administrator Coonley of the NRA asking that a public hearing be held to settle the sympathetic strike in the silk industry, or as alternative that all employers operating under the silk code be exempt from the labor provisions of the code immediately. Next day Mr. Coonley replied that the NRA would hold no hearings on labor conditions in the silk industry and added that "it is impossible to grant your request for exemption from the labor provisions of the code." The code authority then centered its efforts on reopening mills and on Sept. 20, the day before the Inquiry board made its report giving the basis of settlement for the strike, it was stated that in Pennsylvania 25% of the looms made idle by the strike had resumed operation.

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Japan's Curtailment Lifts Silk Prices

A fairly steady improvement both in prices and demand was evident in the raw silk market throughout last month, and importers entered October in an optimistic frame of mind. On Sept. 21, prices of key numbers were about 2½c. above the levels of four weeks previous. In view of the textile strike, this pick-up was regarded as significant. The gain was attributed largely to reports that the Japanese fall crops would be 25% below last year; this curtailment, if confirmed, will be the most decisive reduction effected in Japan in some years. Importers expected the end-September firmness to be continued, even accentuated during October. There was a decided upward turn during the third week of last month, prices averaging 7½c. above those of the preceding week.

Hosiery mills have been buying little silk, most business coming from broadsilk weavers and that on a strictly future basis. Weavers are convinced that the final quarter of 1934 will be favorable to silk, thanks to the promotional stimulus of the "Silk Parade," and their future orders are anticipation of further advances in the primary market.

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Velvet Call Strong; Prices Advance 15c.

Constantly growing demand and curtailed production due to the strike were responsible for a 15c. increase in the price of transparent and other velvets which became effective in mid-September. This raised the price from $1.35 per yd. to $1.50. Practically all mills making transparents had adopted the new level by Sept. 20. So strong is the market for some pile fabrics that orders continued coming in at the same rate as before the advance, manufacturers stated.

Velvet business has been abnormally good this season; this type of fabrics received an auspicious start when Paris endorsed it as the "glamor textile." It was estimated last month that current stiff velvet business was about 75% above the same period last year.

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Crepes Lead in July Retail Fabric Sales

Plain and printed flat crepes were the chief silk piece goods lines both in advertising and sales, in leading stores throughout the country during July, according to figures made public by the Planning and Research Bureau of the National Federation of Textiles, Inc. Sale of fabrics by weaves follows: crepes 39%; prints 37%; plain sheers 7%; satins 8%; taffetas 4% and ribbed weaves (including twills) 5%. Total advertising lineage for silk compared with other fibers follows: silk 35,305; cotton (agate lines) 48,404; and synthetic 23,224.

The statistics also showed that leading colors in order of importance were white, pastels, black, navy blue and brown; however, white decreased 5% and brown gained 7% over June.

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85% of Throwsters Oppose Curtailment

The throwing industry is 85% against any further curtailment of machine hours, according to results of a poll of the industry conducted by H. E. Bishop, executive secretary of the Code Administration Committee. The poll was conducted by letter. It was the outcome of much discussion in the throwing industry as to the merits or demerits of further reduction in machine hours. To bring a final expression of opinion a committee was appointed which listed all the arguments for and against the limitation proposal.

These arguments then were presented to the trade in a letter sent out by Mr. Bishop. The general feeling of the throwsters, it was reported, was that further reduction of machine hours at present would be uneconomic and would work against the interests of the industry.

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Silk Shipments Decline

Raw silk deliveries to American mills showed a moderate decline in September as against August while stocks in warehouses jumped up decisively, according to figures made public Oct. 2 by the Planning and Research Bureau of the National Federation of Textiles, Inc. Key figures in bales follow:

	Imports	Approx. Deliveries	At Warehouses (End of Month)
August, 1934	28,673	36,247	58,694
September, 1934	50,550	32,599	76,645

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Canton Prices Rise In Firm Market

Velvets were by no means the only member of the silk goods family to show a stronger front as regards prices during September. As the month ended, higher prices, some as much as 10c. per yd., were reported on certain of the more popular cantons. Fabric demand generally was good, with interest centering on cantons, novelties and metals. Orders, however, were mostly for nearby shipment, the mills having been rather hesitant about accepting distant business, pending settlement of the strike.

The improved tone was attributed partly to the healthier situation in the primary market and partly to the impetus of the "Silk Parade." The "Parade" has already imbued retailers with greater confidence in silk goods, according to spokesmen for leading weavers, and piece goods movement in stores has increased which in turn has stimulated movement from mills. A surprise feature of the fall was the backwardness of satins; these fabrics, originally believed due for a big season, have not shown their expected activity. Numerous factors voiced the thought that the rise in call for velvets has militated against the satins. When the strike ended, market outlook was healthy; little or no distress merchandise was in sight, and signs pointed to maintained demand at firm prices this month.

Window display at Cheney Bros., New York, in conjunction with "Silk Parade" featured apparel styles of the 19th century

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Industry Briefs

Increased retail interest in pure dye constructions for the early spring season was noted by broadsilk manufacturers at the end of September, and was credited to the recently concluded "Silk Parade." This was one of the first specific benefits of the event evident in the fabric market. The dress trade had not as yet noted any decisive turn towards silks in that division, so far as buying from mills has been concerned.

An application for permission to reorganize has been filed in the Federal Court, Scranton, Pa., by the Pfeiffer Silk Corp., of New York, holding company for the West Park Throwing Co., the Sherwood Throwing Co. and the Water Gap Throwing Co. The action was taken under section 77b of the bankruptcy act which allows firms in financial difficulties to reorganize. Federal Judge A. L. Watson named three trustees, N. D. Dreher, Albert J. Pfeiffer and W. F. T. Jacobs to take over the assets of the firm, and also referred the matter to P. E. Kilcullen, of Scranton, as special master. The firm's liabilities are given as $262,630 against $524,453 assets.

Consular reports to the Department of Commerce show a steady decline in Italy's raw silk output. In Piedmont, key silk province, the 1934 output is estimated to be 23% below normal prewar figures.

James Talcott, Inc., has been named factor for: Deerson Fabrics Corp., Sorel Silks Corp., and Allegheny Textile Co., all of New York; Stall & Dean Mfg. Co., Brockton, Mass.; Norfolk (Va.) Weavers, Inc.

Prospects for increased movement of silk piece goods in the metropolitan area of Chicago were regarded by broadsilk manufacturers as much improved at the end of September, due to the spirited way in which leading Chicago stores exploited the "Silk Parade" idea.

Silk Mill News

Belding-Heminway-Corticelli Co. is now installing an Inversand water softening plant at its Putnam, Conn., mill, which will double capacity of previous plant.

Reed Textile Co., Orange, Mass., has taken over local building for establishment of a new silk mill. Alterations and improvements are under way and equipment will soon be installed, to include an initial battery of about 90 looms and accessory equipment. It is proposed to have the mill ready for active service within the next four to six weeks.

Globe Woven Label Co., Paterson, N. J., has been organized with capital of $25,000, to operate a local mill. New company is headed by Peter Monks and Leo Grabenstein, 115 North Fifteenth St., Prospect Park, N. J.

Majestic Textile Co., Paterson, N. J., manufacturer of silk goods, has leased for four years an industrial building in Catawissa, Pa., into which machinery and equipment is being moved from Paterson. The company will concentrate its manufacturing operations in Catawissa.

Business Men's Cooperation Association, Phillipsburg, N. J., is in contact with a silk manufacturing company (name temporarily withheld), which proposes to remove an existing plant in Pennsylvania to Phillipsburg, where operations will be concentrated in the future. Company is selecting former Breen Co. plant, Shafer Ave., Phillipsburg, which it proposes to remodel and improve for occupancy.

General Textile Mills plant at Fredericksburg, Va., was destroyed by fire Sept. 24, which threatened many other structures nearby. The block-long, 50-year-old, textile mill, which operated 15,000 spindles on commission throwing was completely razed. John W. Berry, manager of the plant, estimated the damage at $200,000, of which half is covered by insurance. The Klotz Throwing Co. owns the mill which had been under lease to the General Textile Corp.

Consolidated Silk Mills, Ltd., St. Hyacinthe, Que., has completed installation of much additional machinery. The firm is the Canadian branch of M. Bornstein & Sons, silk and rayon weavers, New York. It occupies an L-shaped four-story building, equipped with 40 Crompton & Knowles looms and Schweiter and Universal quilling machines.

TEXTILE WORLD'S

Knit Goods Digest

THIS month there is still another addition to the ranks of promotion-minded industries. Knitted outerwear is the latest recruit. The two-year $300,000 drive planned by outerwear mills is decidedly interesting in its outline.

It is safe to say that the merchandising of knitted outerwear has not kept pace with the advances in its manufacture. Some of the divisions of the trade—notably those embracing the finer fabrics used for dresses and suits—are under-sold. They have a legitimate fashion appeal which could be exploited successfully.

Although the promotional plan itself is in too tentative a state to be judged at this time, the objective merits the encouragement and support of the industry.—*Editor.*

Hosiery Strike Partially at an End

Despite cancellation of the general strike, certain divisions of the hosiery industry were still tied up as late as Sept. 27; this, it was reported, was due to the fact that the American Federation of Full-Fashioned Hosiery Workers had not completely revoked its strike call which had been issued against all mills not having contracts with the union. When the textile strike was officially concluded a total of 65 hosiery mills, according to the National Association of Hosiery Manufacturers, had been affected. Since that time 35 have resumed normal operation leaving 30 still affected.

The delay in reopening of hosiery mills was understood to be due to local issues not involved in the general strike. In a statement made just before the publication of the Winant report, Earl Constantine, managing director of the National Association, quoted figures which he said proved the hosiery strike to have been a complete failure. He said that while the industry totals 786 plants employing 145,000, reports from 459 mills employing 92,000 indicated that only 12,000 hosiery workers were idle. Union leaders, however, claimed that nearly 30,000 were out. Mr. Constantine on Sept. 26 criticized as "hasty and unwarranted" the suggestion by the Winant Board that the hosiery industry be included in the recommendations offered for the cotton, silk and rayon industries. He said the eight chief demands made by the U.T.W. were for the most part inapplicable to the hosiery trade. The 5-day week and graduated minimum wage scales, two major union demands, have long been in force in the hosiery industry, he pointed out.

Other knit goods divisions appeared to be in normal operation. The underwear industry was not affected by the walk-out. In the knitted outerwear division, a sympathetic strike was called Sept. 17, which would have affected 5,000 workers in Philadelphia, but the general strike ended before this became effective.

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Test Case Likely In Ringless Dispute

Controversy between hosiery manufacturers who are represented by the Textile Patents Corp., which is administering the ringless stocking patent, and those manufacturers who are "on the outside" seems destined to end in litigation, as result of the patent pool group's decision against making changes in the licensing agreement. On behalf of manufacturers within the pool, the Textile Patents Corp. on Sept. 20 announced flatly that no further modifications could be made in the license agreement, and added the significant statement that "an elaborate program has been developed for the handling of litigation." It was further made known that the corporation had retained Hugh M. Morris, a specialist in hosiery patent litigation, as legal counsel. News of the hiring of legal counsel by 25 ringless manufacturers outside the pool became known Sept. 27.

Inquiry among representative manufacturers on both sides of the fence indicated two major points: First, that the price provisions of the agreement are the chief cause of objections among non-pool manufacturers, with the 10c. license fee per doz. as a contributory grievance; and, second, that a test case will be made shortly to determine the validity of the patent and the rights of the pool group as regards the agreement. The agreement in its present and—according to the Patents Corp.—final form stipulates that licensees cannot sell ringless at less than $6.35 per doz. to retailers or less than $5.75 to jobbers. Leading manufacturers of ringless who oppose this clause claim that it is impossible of enforcement, that it would certainly be evaded and that those who tried to hold to it would be undersold by others. Objections to the 10c. fee charge are understood to be based on the widely published, but unconfirmed, reports that pool members would pay only a 5c. fee per doz.

The prevailing feeling in the market at the end of September was that a test case would be welcomed by both sides, as helping toward a speedy clarification of a situation which is now impeding sales.

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Just Another Overlap!

A demand made recently by the Graphic Arts Code Authority that printing departments of hosiery mills should come under that code, has moved the Hosiery Code Authority to start making a census of hosiery mills which operate printing departments for printing of packing, labels and other matter and also of those mills that are operating box-making departments. The Hosiery Authority points out that inclusion of hosiery mills in the graphic arts code would work injustice as it would put the wage scale of mill printers who do not need to be specialists, on a level with that of the highly skilled artisans operating under the graphic arts code.

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Underwear Status Better

The underwear industry improved its position statistically during August, according to figures compiled by the Bureau of the Census of the Department of Commerce. Stocks declined, shipments increased, and production showed only a moderate rise as compared with July. Key figures follow:

	Production	Shipments Less Returns	Stock on Hand End of Month
July, 1934	1,381,469	1,343,784	4,193,353
August, 1934	1,423,134	1,917,258	3,640,999

MACHINE ACTIVITY

	Total Four Weeks Ending Aug. 4	Total Four Weeks Ending July 7
Total knitting machine hours work	2,125,058	2,351,771
Total sewing machine hours work	2,917,286	3,342,785

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Hemmerich Heads Full-Fashioned Assn.

Hugo Hemmerich, general manager of the Berkshire Knitting Mills, Reading, Pa., was elected president of the Full-Fashioned Hosiery Association, Inc., Philadelphia, at a meeting of the board of directors of that organization, Sept. 18. Mr. Hemmerich succeeds William Meyer, president of Apex Hosiery Co., in that office. Other officers chosen were: vice-president—J. Lloyd Keller, Chalfont Hosiery Mills; treasurer—F. Elwood Struve, general

manager of Apex Hosiery Co.; and secretary—Charles Lehmuth.

The association created a post of honor for past presidents; William Meyer was the first to be designated a Past President of the body. Mr. Meyer is also past president of the National Association of Hosiery Manufacturers.

At the same meeting five new members were elected to the association's board of directors as follows: W. A. Conklin, Reading (Pa.) Full-Fashioned Hosiery Mills, Inc.; Wilford Gray, Grayline Hosiery Mills, Eddington, Pa.; Joseph P. Kelly, Torresdale Hosiery Mills, Philadelphia; C. F. Rodgers, Rodgers Hosiery Co., Inc., and Martin G. Wolf, Oakbrook Hosiery Mills, Reading.

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Wider Markets Aim of Outerwear Drive

Plans for a two-year nation-wide promotional drive to expand the market for knitted outerwear were formulated Sept. 13, at a meeting at the Hotel McAlpin, New York City, which was attended by 80 manufacturers representing the chief divisions of the outerwear industry. The program, which provides for an outlay of $150,000 during the first year, is in charge of the organization committee of the recently formed Knitwear Institute. It was understood that this organization was not in competition with the National Knitted Outerwear Association as a trade body, but was formed solely to meet the industry's needs for a prolonged and spirited sales development campaign. Iser Peter Cohen, chairman of the organization committee, said the movement would be closely associated with the National Association.

Campaign plans were described by Mr. Cohen. Funds for the drive will be raised by an assessment of one-tenth of 1% of volume sales with a set minimum tax of $25 and a maximum of $500. These arrangements are tentative, subject to later ratification, it was stated. The aim of the drive is to stress the quality, style and fashion importance of outerwear to both distributors and consumers throughout the country.

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Scanties too Scant, So Woolens Revive

Will underwear history repeat itself and bring back the old-fashioned heavyweight woolen garments for women? This question is being asked—though not with great seriousness—in the underwear industry this month, incident to the present decisive rise in demand for scanties that have a wool yarn content.

Tone in the ribbed merchandise division is good; September sales exceeded last year with numerous firms, and prices have varied little since the opening of the season. Stocks in stores are reported to be small, which has stimulated call for spot shipment.

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Hosiery Stocks Show Slight Rise

Hosiery production declined but stocks on hand increased slightly in July, 1934, compared with June, according to statistics announced by the Hosiery Code Authority at the end of September. July output was 6,443,000 doz. pr., compared with 8,257,000 doz. pr. in June and 9,992,000 doz. pr. in May, while July shipments were 6,254,000 doz. pr. against 8,335,000 in June and 9,487,000 in May. Total end-of-month stocks for July were 18,353,000 doz. pr. against 18,164,000 at the end of June.

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Industry Briefs

A resolution opposing Government manufacture of hosiery, which had been inspired by news that a Federal relief organization had started operating a hosiery mill in Cleveland, was adopted last month by the board of directors of the National Association of Hosiery Manufacturers. The resolution expressed the opinion that Government manufacture of hosiery, even though part of a relief program, constitutes unfair competition to private industry.

Four major aspects of home work production in the knitted outerwear industry are covered in the report of the hand-knitted division committee which was submitted to the NRA in late September. Among the chief phases of the report are: provision for creation of a home-work control committee of seven; regular submission by manufacturers to the code authority of full details covering all aspects of this work; and the standardization of home work rates of pay.

C. R. Henderson, president of H.R.H. Silk Hosiery Mills, Moberly, Mo., has just completed arrangements with Kings Feature Syndicate by which he will have exclusive rights in the hosiery industry to the featuring of "Krazy Kat," "Popeye", "Annie Rooney", and other comic characters. He will use these characters in promotion of children's hosiery.

More than 700 persons, including knitted outerwear manufacturers from all parts of the country, attended a dinner Sept. 30 at Hotel St. George, Brooklyn, N. Y., in honor of Sol Sussman, president of Sussman Yarn Co., Brooklyn. The event, probably the largest of its kind ever held in the outerwear industry, marked the 25th anniversary of Mr. Sussman's entry into the knit goods field.

Knitting Mill News

Belknap Mills Corp., Laconia, N. H., woolen hosiery, has been acquired by W. B. Weissblatt, Newton, Mass. Mr. Weissblatt, formerly treasurer and general manager of the Contoocook Mills, becomes treasurer and a director of Belknap.

Stream Line Hosiery, Inc., Jersey City, N. J., has been chartered with capital of $100,000, to operate a knitting mill in this vicinity. Incorporators include Robert F. Lewis and William Dudley. New company is represented by the Corporation Trust Co., 15 Exchange Place, Jersey City.

Trojan Knitting Mills, Inc., Brooklyn, N. Y., have been organized with capital of 100 shares of stock, no par value, to operate a local mill. Samuel A. Hirshowitz is one of the incorporators. Company is represented by Jacob M. Miller, 36 West Forty-fourth St., New York, N. Y., attorney.

Robin Redbreast Hosiery Co., Inc., New York, capitalized at $150 000, and 1,500 shares of no par value stock, has filed a copy of its charter for domestication in the office of Secretary of State, at Nashville, Tenn.

Commonwealth Hosiery Mills, High Point, N. C., has opened a branch plant at Randleman, N. C., equipped with 100 machines to manufacture women's seamless hosiery.

Sentinel Mills, Inc., High Point, N. C., recently organized by W. C. Phillips and E. E. Ellington for infant's hose manufacture, has installed machinery and started up.

Bales Hosiery Corp., High Point, N. C., has taken quarters in the old Furniture City Upholstery plant and was expecting to start up early in October. N. W. Bales is general manager.

Anderson (S. C.) Hosiery Mill building has been purchased from the Hutchinson Mill Products Co. of Mount Holly, N. C., by George H. Bailes.

Miller-Smith Hosiery Co., Chattanooga, Tenn., is reopening the Etowah (Tenn.) Knitting Mill, which has not been in operation for 8 years. About 75 workers are remodeling the mill for installation of new machinery.

C. H. Bacon Co., Loudon, Tenn., has purchased 100 new infant's hose machines, and is planning to install additional full-fashioned equipment.

Dubois Knitting Co., Ltd., Richmond, Que., have been organized by the Beauchemin interests. A group of Stoll flat-bed knitting machines are being installed for the production of sweaters, bathing suits, etc.

TEXTILE WORLD'S

Processing Digest

ELSEWHERE on this page we are summarizing the results of a survey made by TEXTILE WORLD to determine who places the orders for dyestuffs and chemicals used in bleaching, dyeing, finishing, etc., and who, in addition, influences the selection of specific brand names or sources of supply. It will be noted that in 23% of the plants, the purchase of these products is actually carried out or is influenced largely by the chemist.

Twenty years ago it was only the exceptional mill in which the chemist exerted such a dominant influence; the progress made to date is notable. When it is realized that the annual consumption of these materials in the 2200 bleaching, dyeing, and finishing establishments in this country is valued at well over $100,000,000, the importance of sound purchasing methods is evident. Until the mill which does not buy chemicals and dyestuffs on the basis of tests and analyses is the exception, there is still room for improvement.—*Editor.*

Who Buys Dyestuffs and Chemicals?

In order to determine who actually places the orders for dyestuffs and chemicals used in the textile industry and who, in addition, exercises an influence in recommending or specifying brand names or sources of supply TEXTILE WORLD has recently completed a survey of the 2,200 plants in which bleaching, dyeing, or finishing is carried out. Although this investigation was carried out primarily from the viewpoint of suppliers of dyestuffs and chemicals, it is believed that the following summary of the results will be of interest to many of our readers who are engaged in textile processing, as it will enable them to compare their own practice with that followed in other mills.

It was found that in 55% of the cases actual ordering was done by a plant executive (president, vice-president, treasurer, agent, manager, superintendent, etc.); in 19% of the cases, by the boss dyer, chemist, or overseer; and in 26% of the cases, by the purchasing agent. In several plants more than one person was authorized to order these products. It was found, further, that in approximately 50% of the cases, those who exercised an influence in recommending or specifying brand names or sources of supply were plant executives, and in approximately 50% of the cases were boss dyers, chemists, or overseers. Here, again, in several plants more than one person influences the selection of dystuffs and chemicals.

It should be noted also that in a few plants (less than 1% of the total) the purchasing agent is also a chemist and, in addition to ordering the chemicals and dyestuffs, exercises an influence in the selection of specific products. Finally, it should be mentioned that in approximately 23% of the plants the purchase of dyestuffs and chemicals is actually carried out or is influenced largely by the chemist who tests these products to determine their money value and general suitability.

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Outlook Uncertain in Finishing Industry

Although the finishing divisions of the industry were, on the whole, less affected by the strike than were the manufacturing branches, the general sentiment in the trade at the first of the month was none too optimistic. In the silk and rayon section, the order of the U.T.W. for its members to return to work averted the threatened strike in the Paterson area of 20,000 employees which had been scheduled to begin on Sept. 24. However, the present agreement between the Institute of Dyers & Printers and the Federated Silk & Rayon Dyers & Finishers of America expires on Oct. 24, and it is problematical as to what will be the result of the union's demands, presented on Aug. 24, for a closed shop, 30-hr. week, and 20% increase in wages.

In the cotton finishing branch, which is less strongly unionized, many plants continued to operate throughout the strike, and the majority of those which were closed have again started operations. A surplus of finished goods, subnormal production in the cotton manufacturing division, and a threatened strike in the garment industry make for an uncertain outlook for the next few weeks.

A.A.T.C.C. Notes

Plans for the annual meeting of the American Association of Textile Chemists & Colorists, which is to be held in New York, Dec. 7 and 8, are now being drawn up. In addition to a symposium on rayon, a program of technical papers, reports of the various sub-committees, and the annual banquet is being arranged for.

At a meeting of the New York section, held Sept. 28, in Paterson, J. C. Harris, research chemist, Colgate-Palmolive-Peet Co., spoke on the subject "Soap—From Manufacturer to Consumer."

A meeting of the Philadelphia Section will be held Oct. 26, at the Penn Athletic Club, Philadelphia.

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Fastness Properties of Dyestuffs on Cotton and Rayon

Some of the absurdities in connection with the classification of the fastness properties of dyestuffs were discussed by C. M. Whittaker, of Courtaulds Ltd., at a recent meeting of the Textile Institute, in London, England. In commenting on light fastness, Mr. Whittaker pointed out that since no known dyestuff is equally fast to light in pale and heavy shades, it is obvious that no dyestuff can be of one standard of fastness in all depths of shade. For this reason, it is impossible to classify a dyestuff as equal to a particular standard, unless the percentage of the dyestuff which is equal to the standard is named. Therefore, it is suggested that the percentage of the dyestuff which is equal to the standard be stated on all color cards giving the fastness properties of the various dyestuffs.

The speaker then called attention to the fact that on cotton a given dyestuff yields a shade which is much less fast to light than a shade of similar depth on viscose. Although this is quite well known, so far as he could recall, it has not been stated in any light classification dealing with viscose and cotton.

Mr. Whittaker then stated that it is astonishing that there is no direct cotton blue, gray, or green which is equal in fastness to light to the best direct cotton yellows, oranges, and reds. Light-classification tables which are now published do not set forth this fact; but it would emerge if the suggestion made previously were adopted. Due to the lack of blue, gray, or green direct cotton dyestuffs of equal fastness to light to the other colors noted, it is impossible to use them with the best of the yellows, oranges, and reds to produce compound shades which will give a balanced fade.

Although it has been asserted that the best direct cotton colors are almost equal in fastness to light to the vat colors, the speaker voiced his opinion that the direct cotton colors are not comparable to the vat colors in this respect.

After making these observations on

light fastness, Mr. Whittaker commented on the fastness to washing, tendering on exposure to light, and shrinking of dyed textiles.

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One-Bath Water Repellent

A one-bath water repellent, called Waterproof W 559, has been announced recently by Jacques Wolf & Co., Passaic, N. J. This product has been developed to give the dyer and finisher of yarns, hosiery, and piece goods a simple process for spotproofing, rainproofing, splashproofing and showerproofing. It is suitable for use on cotton, wool, silk, or rayon. The manufacturer states that by a slight adjustment of concentration, all fabrics can be made water shedding or completely water repellent.

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New Dyestuffs

Calco Chemical Co., announces the following new sulphur dyestuffs:

Calcogene Blue BC6R, a product giving the reddest of navy blue shades in the single or standing bath.

Calcogene Brilliant Blue 3GB, a direct-dyeing color giving a bright greenish blue shade of high all-round fastness.

Calcogene Bordeaux 6R, a copper-containing dyestuff yielding bright, reddish bordeaux shades.

Calcogene Red Brown RCF, a product giving a full reddish brown shade which is not changed by after treatment.

Calcogene Olive Yellow CK extra, a dyestuff of the olive-drab type yielding shades which, when after treated, have vat-color fastness to light and washing.

Calcogene Blue BC2G conc., a product giving very bright greenish shades of navy without use of shading colors.

General Dyestuffs Corp. announces the following new products:

Diazo Fast Green GL, a homogeneous, diazotizable dyestuff yellower in shade than Diazo Fast Green BL, which it closely resembles in dyeing properties; in some fastness properties it is even slightly superior.

Fast Red Salt KB, the 20% Fast Color Salt of Fast Red KB Base, with which it corresponds in its dyeing and fastness properties.

Acid Brilliant Blue R Extra, a homogeneous acid dyestuff possessing fastness properties very similar to Brilliant Wool Blue FFR extra, but surpassing it with respect to clearness of shade and solubility, and in particular as regards leveling.

Indanthren Olive GB Double Paste, a product slightly greener and brighter in shade than Indanthren Olive 3G, and of similar fastness properties, the fastness to light and weather being even slightly superior to the older brand.

Diazo Brilliant Scarlet ROA Extra, which, when diazotized and developed with Beta Naphtol, produces bright shades of scarlet of good fastness to washing; its dischargeability with Rongalite C is very satisfactory.

Alizarine Sky Blue FFG, a homogeneous acid dyestuff, which produces similar bright and clear, but greener shades than Alizarine Sky Blue FFB.

Supra Light Rubine BLA, a wool dye recommended because of its level dyeing properties and of its excellent fastness to light.

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Germ-proof Fabrics

An antiseptic process for rendering textiles immune to bacteria announced a few months ago by the Toxic Gas & Research Corp., 369 Lexington Ave., New York, is now being applied commercially to millinery linings and bed tickings by U. S. Process Corp., 52 East 19th St., New York. The latter organization holds the franchise on the process and is now developing further textile applications. Dr. L. D. Clement, of the Toxic Gas & Research Corp., the inventor of the process, states that the germ-proofing treatment does not affect the appearance of the material treated, but that the bactericides employed cause the processed textile to resist bacterial propagation. It is stated, further, that the treatment is relatively inexpensive and, if desired, can be carried out in conjunction with the usual dyeing or finishing operations on cotton, rayon, silk, and wool.

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Apponaug Shows Profit

A net profit of $160,154 for the fiscal year ended June 30, compared with a net loss of $33,257 for the previous year, is reported by the Apponaug Co., Apponaug, R. I., in its annual statement to stockholders. The profit amounts to $1.77 per share on 90,000 shares of common stock. Alfred Lustig, president, attributes the improvement to the higher finishing prices prevailing during the fiscal year, the yardage volume of business remaining approximately the same as for the previous twelve months.

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Industry Briefs

An administrative budget of $117,600, for the period Jan. 1 to July 1, 1934, has been submitted for NRA approval by the Code Authority of the rayon and silk dyeing and printing industry. The proposed basis of contribution by industry members is ¼ of 1% of the gross volume of business for the calendar year 1933. For firms processing products of their own looms, the basis of contribution would be ½ of 1% of that portion of the payrolls devoted to the dyeing, finishing, or other processing of their own products for the year 1933.

The textile processing industry has submitted an application for the modification of the code of that industry to permit examination by the Code Authority or an impartial agency, of books and records of industry members necessary "for the proper administration and enforcement of the code."

A hearing on several proposed amendments to the code for the cotton converting industry was held in Washington, on Sept. 28. The changes asked call for the setting up of three additional divisions of the industry and for the modification of several of the trade-practice provisions of the code.

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Processing Plant News

Pepperell Mfg. Co., Lindale, Ga., will complete its new dyehouse about Nov. 15. The structure itself has been finished.

Apex Oriental Corp., Haledon, N. J., has just completed installation of a Hungerford & Terry Inversand water softening plant of 1,000,000 gal. per day capacity.

Clairmont Piece Dye Works, Paterson, N. J., are installing an Inversand water softening plant made by Hungerford & Terry, Clayton, N. J.

Hamilton Piece Dye Co., Paterson, N. J., has been formed to take over the **Hamilton Piece Dye Works,** with local plant, following its recent reorganization under provisions of new Federal bankruptcy act. Plant will be continued on First Ave., as heretofore, with equipment and facilities for employment of about 100 operatives.

Peerless Dyeing & Printing Co., Paterson, N. J., has been formed by Leo R. Grosslight and associates, with capital of 1,000 shares of stock, no par value, to operate a local mill. New company is represented by Emanuel Shavick, 140 Market St., Paterson, attorney.

Regal Dye & Print Works, Paterson, N. J., has been organized by B. Moran and associates, with capital of 1,000 shares of stock, no par value, to operate a local mill. New company is represented by Emanuel Shavick, 140 Market St., Paterson, attorney.

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TEXTILE WORLD'S

Engineering Digest

WITHIN a few days (Oct. 18-19, to be exact) Committee D-13 of the American Society for Testing Materials will meet at the Hotel Pennsylvania, New York. We can never resist the urge to act as a voluntary rooter for this committee. Its work has always impressed us as fundamentally so important in the technical development of the industry that we cannot understand how anyone at all concerned with that development can remain aloof from D-13.

If one craves wild excitement, its meetings can hardly be recommended. There is too much plain hard work and hard thinking in the formulation of standards. But when the work is done, there is a peculiar satisfaction in its wake. And don't misunderstand us: these meetings are not lacking in social diversion. A technician is not necessarily the deadly bore that some people imagine.

So once more we recommend attendance at the October meeting of Committee D-13—and at subsequent meetings.—*Editor.*

It's the Little Things

A dramatic method of showing just where the profits may come or go (and, incidentally, the difficulty of obtaining any with a narrow margin) has been devised by Ralph E. Loper Co., Fall River. Presupposing that the mill is making a profit of ¼c. per yard of cloth, some of the points brought out by the company are as follows:

When the fireman saves one wheelbarrow of coal, the mill gains the profit on six looms for a week.

Each pound of white waste put into sweepings costs the mill the profit on two looms.

When a shuttle is broken the mill loses the profit on the loom for six weeks.

The spoiling of one reed costs the mill the profit on the loom for ten weeks.

In a 100,000-spindle mill, when the yarns average a half number heavy in a print cloth it costs the profit on 75 bales of cloth weekly; but if, through the cooperation of overseers and employees, the waste can be reduced 2%, the saving is equivalent to the profit on 800 looms weekly.

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Iler Offers Advice on Preparing for Winter

With winter in the offing, the forward-thinking plant engineer will be mapping out schedules for preventive maintenance work and will put forth effort to complete such unfinished jobs as may be better done now than later on when men experience discomfort outdoors. There are quite a few projects that can be undertaken now and thus prevent inconvenience and added expense when low temperatures prevail.

At this season leaves and other light debris accumulate in fence corners, against building walls, in roof valleys, in gutters, in downspout headers, and against monitors. Unless removed, this accumulation increases the fire hazard and causes drainage interference.

Roofs probably have been repaired during the summer; but now is a good time to give them a final looking over. At the same time, village homes should be inspected for loose siding; missing and broken window panes; chimneys, fireplaces, and grates out of order; and steps not as they should be. We inspect all electric wiring at this time, with special attention being given to fuse plugs. Usually quite a few pennies are found behind burned-out plugs, this being the usual way the tenant gets his lights back on at night after a bad iron, cord, or his electrical-engineering experiments have blown the regular fuse.

Plumbing should be carefully gone over to make certain that stop and waste cocks function properly and that all lines drain when vented.

Hydrants should be scheduled for inspection so that it may be known that they drain properly when the main valve is closed. It is our practice to keep the main valves of hydrants closed during the season of freezing temperatures, leaving one hose valve open for venting to assure drainage.

All valves controlling sprinklers located in exposed places are inspected before being finally closed and tagged for the winter, in order that leakage through may be prevented and resultant frozen pipes avoided.

Basement ventilator closures removed from position last spring should be made ready for setting into place in ventilator openings a little later on.

It is important that grassy growths, becoming highly combustible as they do in autumn, be cleared away from points where a carelessly thrown match or cigarette stub may ignite them, and they, in turn, ignite structures.

Heating systems should be prepared for the service they must render later on. The lines will need a blowing out to remove the sediment from summer's non-use, and traps and strainers will need to be cleaned. Controlling valves should be examined for dependability of control and all necessary repairs attended to.

Exposed building metal work should be painted over, as well as wood work showing need for it. Broken window panes should be replaced before cold weather results in serious leakage of valuable heat units from the plant.

H. H. Iler,
Union Bleachery.

•

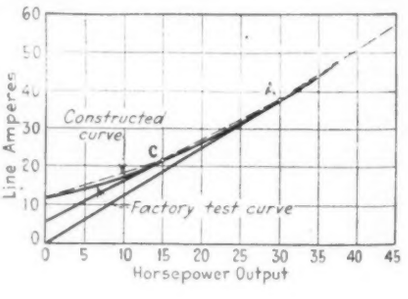
Measuring Horsepower Output of Electric Motor

To measure the horsepower output of a motor, the usual procedure is to take a wattmeter reading of the power input and then assume an efficiency for that load in order to calculate the output, writes I. J. Rand, electrical engineer, Columbia Electric Mfg. Co., Cleveland, in *Factory Management and Maintenance*. Factory test data are usually not available; consequently the efficiency for the load under which the motor is being tested must be assumed, which immediately introduces an error, the size of which depends on the guess of the observer.

A method that is much simpler and sufficiently accurate for average requirements involves merely measurement of the motor current. Use is made of a curve obtained by plotting line amperes against horsepower output. From this curve the horsepower output corresponding to the current input for any load may be readily determined.

The factory test curve of a 30-hp., 440-volt, three-phase, 60-cycle, 900-r.p.m. motor is shown. The full-line curve was obtained by actual load test at the factory. The dotted-line curve is approximated by the use of the ammeter as follows:

Location of point *A*, full-load am-



peres, is obtained from the name-plate. Point *D* is obtained by measuring the current of the motor running idle. Draw line *OA* from zero through the full-load point *A*, and extend it for over-load points. Draw a line *BA*, with *OB* being one-half of *OD*. Draw *DC*, *C* being the point of intersection between line *BA* and the 50% horsepower output ordinate.

With the 30-hp. motor used as an example, the full-load current rating is 38 amp., and the measured idle current is 12 amp. Therefore, *OB* is 6 amp. Curve *DCA* may be constructed and any horsepower output may be determined by measuring the line amperes corresponding to that particular load. If the ammeter reading is 44 amp., say, it corresponds to 34.6 hp. on the constructed curve *DCA*, whereas actually the load at this current value is 35 hp., as determined from the factory test data curve. If a wattmeter were used to measure the input and the efficiency were assumed, it would be difficult to obtain higher accuracy than the 1% given by the ammeter method.

This same procedure can be carried out similarly in estimating the horsepower output of direct-current and slip-ring motors.

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Acetylene Association to Meet Nov. 14-16

The International Acetylene Association will hold its 35th annual convention at the William Penn Hotel, Pittsburgh, Pa., Nov. 14 to 16. The program will be devoted primarily to problems related to the steel industry.

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Welding Society Meets

The 14th fall meeting of the American Welding Society was held in New York Oct. 1 to 5. Seven technical sessions, conferences, and an annual banquet made up the schedule. It was held in conjunction with the National Metals Congress, including an exhibit and meetings of allied bodies.

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Protecting Against Rust

There are a number of textile mills in which certain machines stand idle for fairly long periods, for one reason or another. To combat the damage done by rust to such idle machinery, the use of a rust preventive which can be brushed or sprayed on, and also easily removed, was advocated recently in a publication issued by E. F. Houghton & Co., Philadelphia. Parts of machines which cost hundreds of dollars can be protected against corrosion for a few pennies, the company points out.

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Industrial Materials In Display

The Second Annual Industrial Materials Exhibit is being held Oct. 15 to 19, 1934, at the Park Central Hotel, New York. Exhibitors include American Hard Rubber Co., American Felt Co., American Steel & Wire Co., Apollo Metal Works, Bakelite Corp., Boonton Molding Co., Brown Co., Carborundum Co., Ericsson Screw Machine Products Co., Eclipse Air Brush Co., Peter A. Frasse & Co., Gillespie-Rogers-Pyatt Co., Goetze Gasket & Packing Co., Isolantite, Inc., Maas & Waldstein Co., Mt. Vernon Die Casting Corp., New England Mica Co., Parker-Kalon Corp., Spaulding Fiber Co., Stackpole Carbon Co., Superior Sheet Steel Co., and the Texas Co.

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Engineering Trade News

Poole Foundry and Machine Co., Baltimore, Md., announces that it is now the sole owner of all domestic and foreign patents covering and pertaining to the Poole all-metal, gear, lubricated-type, flexible coupling. The patents were formerly owned by the Poole Engineering and Machine Co.

Crane Co., Chicago, announces that P. R. Mork, formerly vice-president in charge of the New York territory, has been transferred to the general office in Chicago, where he will serve as vice-president in charge of sales. He succeeds H. W. Seymour who is on leave of absence due to ill health. P. R. Berryman, formerly vice-president of Trenton Potteries, has succeeded Mr. Mork in the New York office.

Harold E. Trent Co., Philadelphia, manufacturers of electric heating units and electric furnaces is opening an office at 143 Liberty St., New York, N. Y.

Gates Rubber Co., Denver, Colo., maker of Vulco ropes, has appointed Frank W. Holtzman as district representative for Philadelphia with offices at 377, The Bourse. He has been with the New York and Boston offices as sales engineer.

Bepco Canada, Ltd., representative of a number of foreign textile machinery firms, has announced that it will have an engineering department at its Head Office in Montreal which will be for the use of textile firms having problems in the mechanical line. B. M. Burt, who has been vice-president and Ontario manager, will now be situated in the Montreal office as vice-president and chief engineer. F. E. Regan, formerly sales engineer in the Montreal office is now transferred to Toronto as Ontario manager.

Kingston-Conley Electric Co. has been formed by F. S. Kingston and B. L. Conley to manufacture high-grade fractional horse-power heavy-duty motors. The factory is located at 66 York Street, Jersey City, N. J., and the newly designed motors are now in production.

F. S. Kingston, president of the company, was superintendent of the Small-Motor Department of Crocker-Wheeler Electric Mfg. Co., Ampere, N. J.; later plant manager of the Hoover Co., North Canton, Ohio; and formerly vice-president of the Sunlight Electrical Mfg. Co., Warren, Ohio.

B. L. Conley, vice-president and treasurer, was for a number of years electrical engineer with the Hoover Co. in charge of the design and development of their electric motors. He was at one time associated with the Emerson Mfg. Co., St. Louis, Mo.; and the Holtzer-Cabot Electric Co., Boston, Mass., as designing engineer; and he was chief engineer of the Sunlight Electrical Mfg. Co.

Norma-Hoffmann Bearings Corp., Stamford, Conn., manufacturers of Precision ball and roller bearings, has appointed E. W. Lawrence as its southern representative. He has for the last eleven years been connected with the New York sales office.

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Engineering Mill News

Ware Shoals (S. C.) Mfg. Co. has let contract for 250 additional village houses.

Washington Mills Co., Fries, Va., is installing a new heating system.

Penmans, Ltd., have completed the erection of a five-story warehouse at its plant in St. Hyacinthe, Que., to be used for storage of raw materials. The building, which replaces an old structure, measures 180 x 50 ft.

Goodyear Cotton Co., Ltd., St. Hyacinthe, Que., has started up the new equipment recently installed in the steam generating department. About 200,000 lb. of tire fabric is now being produced weekly.

QUOTATIONS

At close of business, October 1, 1934

Prices cover average qualities unless otherwise stated

Cotton Goods

	Oct. 1	Sept. 4	1933 Oct. 2
PRINT CLOTHS			
27 -in., 64x60, 7.60	5	5	4¾
38½-in., 64x60, 5.35	7¼	7¼	6¾
39 -in., 68x72, 4.75	8	8¼	7¼
39 -in., 72x76, 4.25	8¾	8¾	8¼
39 -in., 80x80, 4.00	9	9¼	9¼
BROWN SHEETINGS			
36-in., 56x60, 4.00	8¼	7¾	7¼
36-in., 48x48, 5.00	6¼	6¼	6¼
37-in., 48x48, 4.00	8¼	7¾	7¾
MISCELLANEOUS			
Drills, 37-in., 3 yd.	10¼	10	10¼
Denims, 2.20	15½	15½	17
Tickings, 8 oz.	19	19	20
Standard prints	7½	7½	7¾

Cotton Waste

Peeler comber	14.25
Peeler strip	13.50
White spooler (single)	7.25
Linters (Mill Run Average)	5.75

Cotton Prices

Spot Cotton at:	Oct. 1	Sept. 4	For Month High	For Month Low	1933 Oct. 2
New York	12.50	13.15	13.40	12.55	9.90
New Orleans	12.60	13.13	13.30	12.70	9.61
Liverpool	6.91	7.08	7.24	6.82	5.53

FLUCTUATIONS OF FUTURES

	Closed Oct. 1	For Month High	For Month Low	Closed Sept. 4	Net Change
Oct.	12.21	13.15	12.28	12.99	—0.78
Nov.	12.25	13.21	12.33	13.05	—0.80
Dec.	12.30	13.27	12.38	13.11	—0.79
Jan.	12.35	13.31	12.42	13.17	—0.78
March	12.43	13.36	12.52	13.20	—0.73
May	12.50	13.43	12.58	13.24	—0.74
July	12.56	13.48	12.63	13.30	—0.74

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1 1/16-in.	14.80	15.30
1 5/16-in.	16.05	17.30
1 1/4-in.	18.80	20.80

Based on Dec., 12.30.

FOREIGN COTTONS

Alexandria Exchange, Oct. 1	
November, Sak	14.89
October Uppers	12.36
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak	25.25
Medium Uppers	22.30
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	10.00
China Tientsin No. 1	12.12

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Cotton waste prices also include the processing tax but of course the prices on various raw cottons do not include it.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality

SINGLE SKEINS OF TUBES (Warp Twist)

4s to 8s	$0.27½	20s	$0.31
10s	.28	24s	.33
12s	.28½	26s	.34
16s	.29½	30s	.36

TWO-PLY SKEINS AND TUBES

8s-2	$0.28	20s-2	$0.31½
10s-2	.28½	24s-2	.33½
14s-2	.29½	30s-2	.36½
16s-2	.30	40s-2	.42½

SINGLE WARPS

10s	$0.28½	20s	$0.31½
14s	.29½	24s	.33½
16s	.30	30s	.36½

TWO-PLY WARPS

8s-2	$0.28½	20s-2	$0.32
10s-2	.29	24s-2	.34
14s-2	.30	30s-2	.37
16s-2	.30½	40s-2 ordin.	.43

HOSIERY CONES (Frame Spun)

8s	$0.28	18s	$0.30½
10s	.28½	20s	.31
12s	.29	22s	.32
14s	.29½	24s	.33
16s	.30	26s	.34

COMBED PEELER (Average Quality)
TWO-PLY—(Knitting Twist) Cones

20s-2	$0.40½	50s-2	$0.54½
30s-2	.45½	60s-2	.60
40s-2	.50	80s-2	.80

WARPS, SKEINS AND CONES
TWO-PLY—(Warp Twist)

20s-2	$0.41	50s-2	$0.55½
30s-2	.46	60s-2	.61
36s-2	.48½	70s-2	.71
40s-2	.50½	80s-2	.81

SINGLES

14s	$0.37½	38s	$0.48½
20s	.40	40s	.49½
28s	.44	50s	.54
30s	.45	60s	.60

MERCERIZED CONES—(Combed, Ungassed)

30s-2	$0.54	60s-2	$0.73
40s-2	.59	80s-2	1.00

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$1.43½	$1.15½	$1.14½
Grand XX, 83%	1.30½	1.12½	1.11½
Special Crack, 81%	1.24½	1.10½	1.10½
Crack XX, 78%	1.21½	1.09½	1.09½
Extra, Extra, 73%	1.18½	1.08	1.08
Best Extra, 68%	1.15		

RAW SILK EXCHANGE

	Oct. 1	Sept. 4	For Month High	For Month Low	Net Change
Oct.	1.11	1.09½	1.15½	1.07½	+0.01½
Nov.	1.12	1.10	1.16½	1.09½	+0.02
Dec.	1.13	1.11	1.16½	1.10	+0.02
Jan.	1.13½	1.12	1.19	1.11	+0.01½
Feb.	1.14	1.12	1.19	1.11½	+0.02
March	1.15½	1.12	1.19½	1.11½	+0.03½
April	1.15	1.12	1.19½	1.11½	+0.03

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.10
Hosiery tram, 5th. crack XX, 78%	1.85
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	$0.12–$0.14

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne	$0.29 –$0.30	¾ blood	$0.30 –$0.31
Fine clthg	.23 – .24	½ blood	.29 – .30
¼ blood	.30 – .31		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.71–$0.73
California, Northern	.61 – .62

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.75 –$0.77
Staple ½ bld.	.72 – .75
Fine and fine medium (original bag)	.72 – .75
¾ blood	.65 – .66
½ blood	.58 – .60

EASTERN SCOURED PULLINGS

A.A.	$0.75 –$0.80	B-Super	$0.55 –$0.58
A-Super	.65 – .67	C-Super	.51 – .53

CARPET WOOL (Nominal)

Aleppo (clean)	$0.18 –$0.21
Sining	.11 – .15
China filling (clean)	.10 – .14

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.95 –$1.00
Half-blood (60-62s)	.91 – .93
Aver. ¾ blood (56s)	.80 – .83
½ blood (50s)	.75 – .78

NEW YORK TOP FUTURES

	Closed Oct. 1	For Month High	For Month Low	Closed Sept. 4
Oct.	75.6	79.0	76.2	77.6
Nov.	76.8	79.8	76.6	78.1
Dec.	76.0	80.5	77.1	78.6
Jan.	76.2	81.1	77.6	79.1
Feb.	76.4	81.6	78.1	79.6

TOPS—BRADFORD ENG. (Oct. 1)

Fine (64s)	26d	¾ bld. (56s)	19½d
½ bld. (60s)	24d	¼ bld. (50s)	15 d

NOILS—BOSTON

Fine	$0.51 –$0.53	¾ bld.	$0.44 –$0.46
Half bld.	.48 – .50	¼ bld.	.40 – .43

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$0.97½–$1.00	2-36s 58s	$1.32½–$1.35
2-30s 46s	1.05 – 1.10	2-40s 60s	1.37½– 1.40
2-30s mixes	1.40 – 1.45	2-50s 64s	1.52½– 1.55

ENGLISH SYSTEM KNITTING

2-20s 44s	$0.92½–$0.95	2-20s 60s	$1.17½–$1.20
2-20s 50s	.97½– 1.00	2-20s 64s	1.22½– 1.25

FRENCH SYSTEM

1-26s 64s	$1.20 –$1.25	2-40s 64s Zephyrs	$1.42½–$1.45
1-30s 64s warp	1.40 – 1.45	2-50s 66s	1.60 – 1.65

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.15	150	24–40	$0.55
75	30	.90	150	60	.60
100	40	.75	300	44	.45
125	36	.62			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$0.95 –$1.00	150	$0.60
100	.80 – .85	175	.60

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.20	100	$0.85 –$0.90
55–65	1.15	120	.70 – .80
75	1.00	150	.65 – .75

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.50	100	75	$0.80–$0.90
75	60	.95–$1.05	150	112	.65– .75